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JOURNAL
OF THE
ASIATIC SOCIETY OF BENGAL,

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THE SECRETARIES.

VOL. XXI.

Nos. I. to VII.—1852.

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“ It will flourish, if naturalists, chemists, antiquaries, philologers, and men of science, in different parts of *Asia*, will commit their observations to writing, and send them to the Asiatic Society at Calcutta. It will languish if such communications shall be long intermitted ; and it will die away if they shall entirely cease.”—SIR WM. JONES.

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CALCUTTA :

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1853.



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* Withdrawn by the author, as irrelevant to his paper on the Dust Whirlwinds.

† Not received vide Note at the foot of page 621.

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* Not received : vide note at the foot of page 621.

JOURNAL
OF THE
ASIATIC SOCIETY.

No. V.—1852.

*Ibn Huokul's Account of Seestan, translated by Major WILLIAM
ANDERSON, Bengal Artillery.*

“I have added to the Map of Seestan, the boundaries on the various sides. On the East, the deserts between Mukran and Sind and Mooltan: on the West, Khorasan with a few districts of India; on the North, India, Ghoor, Khorasan and Koomes; on the South, the deserts between Seestan, Fars and Kerman.

The towns of Seestau and the bounding districts are, Zurunj, Keyun, Noh, Tak, Koheen, Khash, Farruh, Churruh, Bost, Zurdan, Serwan, Zalkan, Bugnee, Dejh-Guz, Buk *Gurmabuk*, Bishling, Punj-waee, Kohuk, Ghuznee, Kusr *Quetta*; Seewee; Espungulee, Haman.

The chief town is called Zurunj,—having both a city and suburbs, the city contains a castle, and is surrounded by a ditch; while the suburbs have a mere wall. The water in the ditch is partly from springs in it, and partly from surplus irrigation. The gates are five: the Judeed and the Ateek both leading to Fars, at no great distance from each other; the Kurkoonuh leading to Khorasan; the MEE-SHUK leading to Bost; the Tam leading to the various suburban villages. The most frequented is the Tam gate-way: all the doors are covered with iron.

For the suburbs there are thirteen gate-ways:—

The Meena; in the direction of Fars.

The Joorjan;

The Sarol;

The Setara;

The Shaeb;

The Lookheek;

No. LV.—NEW SERIES.

The Kaz ;
The Meeshuk ;
The Kurkoonuh ;
The Esrees ;
The Ajuzuh ;
The Beemarestan ;
The Rooguran ;

all these gate-ways are of earth in regular layers, with wood-work fixed in them. The Jama Musjed is in the city as you enter the Fars gate. The offices of Government are in the suburbs between the Fars and Tam gates, outside the city. The jail is within the city near the Musjed. There also was the Government house, but it is now transferred to the suburbs. Between the Tam and Fars gates are the palaces of Yakoob and Omur, sons of Lues ; a Government office also exists in the palace of Yakoob. Inside the city, between the Kurkoonuh and Meeshuk gates, is a grand building called the URK—it was the treasury of Omur. The bazars of the city are near the Musjed, they are extensive, but those of the suburbs are more frequented. Omur built a bazar which he made *wukf* for the Musjed, the hospital, and the Kabu at Mecca—one thousand derhems are daily collected in this bazar. The inner city is supplied with water by many canals ; one enters by the Uteek gate-way, a second by the Judeed, and a third by the Tam gates ; the expanse of these waters if joined would turn a mill. Near the Musjed are placed several large tanks into which flows fresh water to be used and expended in the houses of the people and in their under-ground residences. In the larger palaces of both the city and suburbs water is also plentiful, as also are gardens. Through the centre of the suburbs run those canals which enter the city.

The bazar extends from the Fars gate of the city to the Meena gate of the suburbs, nearly half a fursukh.

The soil is saline and sandy ; the climate arid, nourishing dates, but without snow. The surface consists of level plains.

No mountains are visible, the nearest being in the district of Furruh.

The wind is so strong and so steady, that the inhabitants have erected grinding mills to be turned by it. The sands fly much from place to place to an extent carrying injury to the villages and towns.

When it is desired to remove a heap of saud from a place to some distance from the fields near it, they build up round the saud an

enclosure of reeds and wood-work higher than the heap and make a narrow entrance,—the wind enters and carries up the sand like a whirlwind as high as the eye can reach,—no injury is thus sustained.

Report says, in the days of the Persian empire, there existed a great city between Kerman and Segestan, lying from the citadel in the direction of Rasek, on the left of the road to Kerman, at a distance of three marches; some houses and buildings are standing in these days;—it was called Ram Shuhrestan; the Segestan canal ran to it from a bund on the Helmund,—but its banks were destroyed and cut up into breaches; the waters escaping, it became useless. The population migrated and built Zurunj.

The Helmund is the chief river, springing behind the country of Ghoor: it flows by KUNDAHUR Zumeendawur and under the walls of Bost, to Seestan, where it joins the Zuruh Lake.

This lake is a large expanse of water, increasing or diminishing according to the seasons. The length of the lake is about thirty fursukhs from KUWEED on the Kohestan road, to the bridge of Kerman on the road to Fars; while its breadth is about one march, the water ever sweet abounds in fish and reeds. Round the lake except on the side of the desert are situated villages.

The Helmund flows from Bost unto a march's distance from Seestan; different portions of its water are turned off at various points. The first canal is called the Tam, it flows to the villages and ends in the district of Meeshuk. The next canal is the Bashtrood watering many hamlets; next is turned off the Seyarood, which runs within one fursukh of the capital, and by that canal come down the boats from Bost, but only in the season when the rivers rise. All the various smaller canals of the city are derived from this Seyarood. The Helmund flows on until the Shabuh rood watering thirty villages is turned aside, after which the Meelan canal is taken, to water much cultivation. What is left of the water is carried in to the canal called BURG. Sometimes a bund is built on this canal to prevent any water running into the Zuruh Lake, until arrives the season of the river's rising, when the bund is cut and the surplus water allowed to run into the lake.

At the gate of Bost, a bridge of boats is built over the Helmund, as is the custom over the rivers of Erak.

The surplus waters of the valley of Furruh and surrounding country

also flow into the Zeruh Lake. The river of Furrh rises in the country of Ghoor, as does the stream called Meeshuk also flowing into the lake.

Seestan is highly productive, abounding in grain and fruits and grapes. The inhabitants to appearance are comfortable. Large crops of Assafœtida are gathered in the deserts which lie between Seestan and Mukran; the people often eat it as food; and mix it very generally in all their cooking.

Buloochistan is the name of a country in which is the town called Seewee, but the chief resides at QUETTA; ESPONGULEE is larger than Quetta. Rukhuj is the name of a district of which a town is PUNJWAE and another KOHUK, this district lies between Buloochistan and Zumeendawur; the inhabitants are mostly weavers of woollen cloth; much money is paid as revenue from this district; much grain is also produced, as the country is both fertile and extensive.

Zumeendawur is a productive spot being bounded by Ghoor, BUGNEE, Khuluj BISHLING and KHASH; the town of Zumeendawur is without walls but has a citadel; it is also the name of the district of which are towns called GURMABUK and DEZ GUZ both situated on the banks of the Helmund. But in Bugnee, Khuluj, ZABUL, and Ghoor with their dependencies, some of the people are on terms of alliance, and some have become Mohummedans. These places are all very cold locations.

The Khuluj is a Toorkee tribe, which for ages, has wandered between India and Seestan to the South of Ghoor; they are rich in cattle like other Toorkee tribes, their dress and language are similar to those of Erak; they wander to Meroe and visit India as merchants.

Bost is a city larger than any other in the government of Seestan, except Zurung—but it is not salubrious; although very fertile at all seasons; having both dates and grapes.

KOOHEEN is a small place, but having villages and hamlets attached; it is situated one march from Seestan on the left of a traveller to Bost, about two fursukhs from SUROOR; the family of Suffar which ruled over Fars, Kerman, Khorasan and Seestan came originally from this place. They were four brothers called Yakoob, Omur, Taher and Ulee, sons of Lues. Taher was killed at the gate of Bost; his grave is there. Yakoob died at Jund Shapore on his return from Baghdad, at which place he is buried. Omur was killed and buried at Baghdad.

Ulee contrived to win his way to safety in Joorjan, he departed life in the Dehestan where he was interred. Yakoob was the eldest in years and a slave in some of the Sufar families. Omur was by trade a carrier, and it is said worked for some time as bricklayer. Ulee was the youngest in years, but he was the cause of their rebellion and subsequent rising in the world. They had a maternal uncle called Kubeer, the son of Rumadegan, who was a leader of a party against the Khowarej.

He was shut up in a Fort called Kufeel but escaped, and then went on to Bost; at this time there was a man called Dêrhem, the son of Nusr, in these parts, who was as the head of a number of men who were outwardly anxious for a holy war and for the destruction of the Khowarej. The above four brothers were followers of this chief.

They advanced into Seestan; the Governor, on the part of Taher had not any great force, so they held a conference at the gate of the city, where Derhem-ben Nusr apparently professed his allegiance and proceeded on to attack the Khowarej: he then caressed the people, until they joined him; when he returned and obtaining entrance into the city, ejected the Governor, established himself and then destroyed many of the Khowarej party.

Ammar son of Yaser was the leader of this sect—Yakoob proceeded and killed him.

This circumstance caused his rise in rank; the people were delighted with him, while he so won the affections of those in authority round Derhem-ben Nusr, that they placed him in the government. Every affair centered in Yakoob, until Derhem became his servant, but he did not behave well to Derhem who took leave on excuse of making a pilgrimage to Mecca.

After a residence of some time in Baghdad, Derhem returned to Seestan as an ambassador, from the Khalef, he was immediately killed by Yakoob. The affairs of this leader then so prospered, that he became chief in Seestan, and the confines of Seinde and India. In those countries many received the religion of Eslam from the hands of Yakoob; he then rose to power in Kerman, Fars, Khozestan, a portion of Erak and Khorasan.

TAK is a town one march behind a person going from Seestan to Khorasan, a small place, but with villages, which produce a vast quantity of grapes used by the people.

KHASH is at a distance of one march from Koheen on the left of the road to Bost about half a fursukh ; larger than Koheen ; producing dates and trees, both places are well watered by streams and Kareez.

Furuh is larger than any of these places ; having villages at least to the extent of sixty ; with dates, fruits and corn, watered by the Furuh rood ; its houses are built of clay, but the surface is level.

CHURUH is near to the boundary of Furuh on the rights of the Khorasan road, about one march ; a small place like Koheen, but with villages and hamlets ; very fruitful, watered by Kareez. The houses are made of mud.

SERWAN is a small place like Koheen, but better peopled, producing fruits, dates and grapes ; at a distance of two marches from Bost ; the first march being Ferooz Mund, and the second Serwan on the Zumeendawur road.

ZALKAN is one march from Bost ; producing fruits, dates and corn, most of its inhabitants are weavers ; its waters are from canals, but its houses of clay ; about as large as Koheen.

Zurkan is less than Koheen, it is near Feroozmund on the right of the Rukhuj road. Much salt is produced, with corn and fruits ; water is plentiful.

Marches between Seestan and Herat.

Kurkoonuh,.....	3 f.
BASHTUR,	{ 4 f. crossing the bridge of a canal from the Helmund. (The Bashtrood).
Joween,	1 m. Map.
Busunt,	1 m. unknown.
Kufjur,.....	1 m. ditto.
Sershuk,	1 m. ditto.
Bridge over the Furruh river,	1 m. Map.
Koosar,.....	{ 1 m. doubtful.
Kookshekar,.....	
Jashan,.....	1 m. Chah Juhan ?
Kareez Seree,	1 m. Seraee, Map.
Jubul-ol-uswud,	1 m. Seyahkoh.
Haman,	1 m.
Herat,	1 m.

Marches from Seestan to Bost.

Dahook,	1 m.
Suroor,.....	{ 1 m. a royal populous village ; Chag- nasoor.

Horooree,.....	{	1 m. over a brick bridge on the Mee-shuk river.
Dehuk,.....		1 m. District.
Abshoor,		1 m. Map.
Guzre dubeer ..		1 m. doubtful.
Huft Chah,		1 m. Map.
Ubdallah,.....		1 m. Map.
Bost,.....		1 m. Map.

From Dehuk to within a fursukh of Bost, the whole country is desert.

Marches from Bost to Guznee.

Feerooz Mund,		1 m. unknown.
Mueghoon,		1 m. doubtful.
Kuebur,		1 m. ditto, a fragment apparently.
Punjwae,.....		1 m. a town of Rukhuj.
Tukeenabad,.....		1 m.
Khoomsunuh,	{	I suggest Homuk the district of Kulate Gulzaee.
Sereusp,		Map.
Ukool,		Map.
Chungulabad,	{	A native acknowledged he had heard the name.
Urmur,.....		Doubtful, may be Ghoojan.
Khast,.....	{	Introduced from three other books, unknown, I suggest Khost, and Mokur, the last is well known and about where these marches would fall.
Khoomuk,	{	
Khabser,	{	Frontier of the Ghuznee territory, unknown.
Khusajee,.....		I suggest Karabagh.
Hudwah,	{	A well peopled place; Huzardeh, I suggest.
Guznee,		

From Punjwae to Buloochistan.

Robat Hujur,		
Tungee,		A robot towards the Khojuk range.
Bur,.....		Unknown.
Esjab,		<i>Espungulee</i> , I suspect.

Marches to Kerman and Fars.

Haroot robot,	1 m.
Daruk,	1 m.

Buzur-deen,.....	1 m.
Gaomeshuk,.....	1 m. Gaopulung, Ouseley.
Rasek,.....	1 m.
Kazee,.....	1 m.
Gooraghan,.....	1 m.

Mushtuk, 1 m.; the half-way town between Seestan and Kerman. On leaving Gaomeshuk half-way to Kondur exists a robat, built by Omur: the place is called the Bridge to Kerman although there is no bridge whatever on the spot.

Various distances.

From Seestan to Furrub, 3 marches.

From Furrub to Churruh, 2 marches.

From Furrub to Kooheen, 2 marches.

From Noh to Furrub, 1 easy march; near the desert

From KEYUN to Seestan, 30 fursukhs; on the borders of Kerman.

To Tak on the Keyun road, five fursukhs.

Khash; from the road to Bost, one fursukh, and from Koheen one march.

From Bost to Serwan two marches on the Zumeen dawur road.

The Helmund is crossed one march beyond Serwan; when you enter the district of Buk (Gurmabuk)—and proceed on one march to Dez Guz both on the same bank of the river. From Gurmabuk to Bugnee one day's march among the Khuluj tribes; Beshling is to the South of Bugnee.

Punjwae is at the back of Guznee; while Kohuk is about one fursukh from Punjwae from the South.

From Punjwae to Espungulee, three marches.

Quetta is opposite to Espungulee at a distance of a fursukh.

From Espungulee to Seewee two marches."

NOTES.

Having premised, that there exists no possible form within reasonable limits into which proper names in manuscript may not be traced and that several liberties have been taken to obtain from the text even a shade of meaning, I proceed to offer my authorities for the readings I have adopted.

Before me lie four copies of this work; Sir Wm. Ouseley's from the Persian: Sprenger's copy of *Ibne Huokul*; *Estukhuree* as edited by Moeller; the printed copy of *Edresee* translated into French.

I do not touch on those places whose histories are well understood.

Meeshuk.—This is the gate leading to the districts watered by the river of this name. Edward Conolly calls the river Chabulk; but adds, that it rises at a spring called Meeshuk.

Urk, or Urg.—Is the Greek *αρχ*.

Kundahar.—The identification of Kundahar with the Greek Arachotia is acknowledged.

Kuweed.—The written word is Kureen, but a native who knew the country suggested the name I have given.

Burg.—I have taken in preference to Lool; doubtful.

Assafetida.—The district is, to this day, celebrated for this drug.

Quetta.—So I read *قصر* as a corruption or translation of *قوت*.

Espangulee.—I offer, for a word written differently in each book; it is a well known village at the exit from the Koochlag range, whence two main roads diverge, one to India viâ the Bolan,—one to Soume-yanee viâ Khozdar.

Kohuk.—Is situated as indicated subsequently; is a place on a hill, the scene of one of General Nott's battles.

Punjwae.—Is a celebrated village or rather town ten miles West of Kundahar. I never understood it had any claims to antiquity, or to the honour of being the capital of the district; though ancient mounds were said to exist near it. Nor do I think the sense of the Arabic warrants the assumption of its being the capital.

Bugnee.—Is a district bounding Zumeendawur; visited by Captain G. L. Cooper.

Bishling.—Is so written and is so noted as a district next to Baghran by Captain Cooper in the sketch of his route.

Khash.—Is the district at the head of the Khash river.

Gurmabuk.—Almost all the books indicate Buk or Bug; which appears to have a district acceptance, as Bugnee, Bughran, Bukwa; but I treat it as the final fragment of the word given; because it states subsequently, "at one march from Serwan, you cross the Helmund on the road to Zumeendawur; and enter the district of Bug on the banks;" this our Artillery under Captain Hawkins did; marching from Serwan to Zumeendawur and crossing at Germabuk. At the same time the ruins of forts are numerous, and the capital has no other proper name than that of the district.

Dez Guz.—But for being declared on the banks of the river, I should have read this word *Durghosh* which exists as a large place some thirty or forty miles East of the river. Colonel Sanders in his survey down the *Helmund*, 10 miles above *Serwan*, places the district of *Guz*. *Dez* or *Dezh*, is *Puhluwee* for a fort.

Zabul.—Most books have *Kabul*, but the word given is clearly the one required, as the old name for the districts of *Subswar* and *Furruh*.

Kooheen.—Distinctly so written in a copy of the *Nozut ol Koloob*, as the birth place of the *Suffar* family.

Suroor.—Now called *Chugnuoor*: *Edward Conolly* halted at the fort; and says, the definition given to him was, *Khanuhesoor* or the house of gladness; *Rostum* having at it celebrated his marriage.

Tak.—Now exists; was visited by *E. Conolly*.

Khash.—The present fort; as located.

Churruh.—Was seen and determined by *Colonel Sanders*.

Serwan.—The fort of the modern *Serban* or *Serwau* district; as placed.

Zalkhan.—Is now one of the first canals taking off from the *Helmund*, in the district of *Gurumseer*.

Zurkan.—Unknown.

Bashtur.—Is, I have no doubt, the correct reading—all our copies differ. I can understand, as knowing the irrigation system that the canal called *Bastrood rau* to this place.

Road to Guznee.—The most unsatisfactory of all the identifications are of this route; few of them are complete or happy: and yet our surveyors have been constantly up and down the road. *Tukeen* or *Tugeen* is, I suspect, the chief who built or resided in the old city of *Kundahar*, if the two places mentioned are to be considered one city. Near the *Turnnk* are ruins of a place called *Jukan*, about 12 miles higher up the road; *Shuhre-Sufa* would better break the distance. *Homukey* is the district of *Kulate Gulzaee*. It must be remembered, that words much used and often quoted by Europeans, have but little currency. I give this route entire as written in each of the four copies; a specimen of the dependence to be placed in manuscript.

Keyun.—The ruins of *Keyunabad* near *Bum*.

The greatest indulgence is craved for these attempts; nothing but local knowledge will ever be sufficient to correct such vitiated manuscript. If individuals from the countries would each undertake to correct the portion within his immediate knowledge, we might hope at last, to obtain a correct version of the original. I anticipate that it will ultimately be found, that the names of places have changed much less than is supposed.

Route from Bost to Guznee as copied from EBNE HUOKUL, ESTUKHREE, EDREESEE and OUSELEY.

Proposed reading.	اوزاي	ادريسي	اصطخري	ابن حوقل
	فيروزمند	فيروز	فيروز ورد	فيروز مند
	معون	معون	معون مغور	ميفون
	كر	كيدر	كدور	كدور
	رخچ	رخچ	رخچ بحراي	رخچ فنجواي
	نسكين اباد	ميكن اباد	بكيدر اباد	تكين اباد
حومكي	خراسانه		خراسانه حرماسه	حومسناه
سراسپ	سيراپ		سراب	سرام
	ادمي	اوق		اود
	چنگل اباد	چيگل اباد		حدگل اباد
اغوجان	دهيه عوم	عزير		عرمو
	خاست	حاست	خاسب	
مقر	جومه	خومتده	خومه	
	خابسار	حاسان		حامسار
قرا باغ	خساجي	حسراجي		حساجي
هزارديه	هزاردهي	حروي		ددوه
	غزنه	غزنه	غزنه	غزنه

Note by A. SPRENGER. The original MS. from which this account of Afghanistan and the account of Sind which has been published by Major Anderson with most valuable remarks and identifications in p. 49 of this volume, have been taken is in the Moty Mahall library at Lucknow. It is a volume in folio of 276 pp. 17 lines in a page. We are informed in the postscript that it had been copied in A. H. 589 from a "very correct" MS. The first leaf of the book and consequently the beginning of the preface is wanting, and we are therefore left in ignorance as to the name of the author. The title of the book is according to the postscript *Ashkál albilád* or *Diagrams of the country (of the Islám)*. The diacritical points are wanting in most instances and many letters cannot be well distinguished from each other. The book was copied for me in 1847 with great care, and subsequently it was compared with the original, but the copyist has in doubtful instances decided in favour of the most likely reading; and no doubt sometimes he has gone wrong. It is therefore much to be regretted that this copy is the only one available for Major Anderson.*

Though the beginning of the preface is wanting, the greater portion of the Introduction is preserved.

It contains the plan of the work which I give here in a translation. "Then (after having given a map of the world), I have devoted a separate Diagram to every country of the Islám, in which I show its frontiers, the shape of the country, the principal towns, and in fact every thing necessary to know. The Diagrams are accompanied by a text. I have divided the dominions of the Islám into twenty countries; I begin with Arabia, for this peninsula contains the Ka'bah, and Makkah which is unquestionably the most important city and the centre of the peninsula; after Makkah I describe the country of the Bedouins, then I proceed to the description of the Persian gulph which surrounds the greater part of Arabia, 3. the Maghrib, 4. Egypt, 5. Syria, 6. the Mediterranean, 7. Mesopotamia, 8. the 'iráq, 9. Khuzistán, 10. Fáris, 11. Kermán, 12. Mançúrah and the adjacent countries,† which are Sind, India and part of the Mohamadan territory. (in India,) 13. Adzarbayján, 14. the districts of the Jibál,

* Since writing the above, I sent the proof-sheet of the original text to Capt. H. F. Hayes, Asst. Resident at Lucknow, who has obligingly compared it with the original MSS. in Moty Mahall.

† Here a space of about six inches is left blank, and in the margin are the words ;
 صورة الكل تقدمت في الورقة التي يتلوها هذه

"This space is for the Map of the World (but it is not large enough, therefore the copyist has deviated from the original from which he transcribed) and it stands in the opposite page."

15. Daylam, 16. the sea of the Khazar (i. e. the Caspian), 17. the steppes between Fâris and Khorâsân, 18. Sijistân and the adjacent countries, 19. Khorâsân, 20. Mâ-warâ-nahr."

Of every one of the above countries there seems to have been originally a map, but two have been lost (viz. No. 6 and 10) and some have been transposed (as well as several leaves of the text) by the book-binder. A full notice of the book has been given by Sir H. Elliott, *Ind. Historians*, I. p. 61.

On comparing the *Ashkâl albilâd* with Möller's *Içtakhry* it appears that it is somewhat fuller. There are details in the former which are omitted in the latter, thus we find in it the names of the gates of Ghaznah, which are omitted by *Içtakhry*.

In like manner we find in other instances that where there are names and facts in the *Ashkâl* we meet in *Içtakhry* with a general account, I therefore conclude that *Içtakhry* is an abridgment of the *Ashkâl*. A man who is able to give new facts on every country of the Islâm, if he had lived after *Içtakhry* would certainly have written an original work and would not have added them to the meagre account of *Içtakhry*. We find most of the clerical errors in the orthography of proper names in *Içtakhry* which are in the *Ashkâl*. If the *Ashkâl* was an *enlarged* edition of *Içtakhry* it would certainly be also an *improved* one, for a man who can add is able to improve whereas an epitomator does not necessarily possess such a qualification.

Ibn Hawqal seems to be a more recent edition of the *Ashkâl albilâd*. There are, as far as I know, few if any new facts mentioned in Ibn Hawqal but the expression is in a few instances changed.

واما سيجستان وما يتصل بها

مما قد جمع اليها في الصورة فان الذي يحيط بها مما يلي المشرق مفازة بين مكران وارض السند وبين سيجستان وشئ من عمل الملتان ومما يلي المغرب خراسان وشئ من عمل الهند ومما يلي الشمال ارض الهند ومما يلي الجنوب المفازة التي بين سيجستان وفارس وكرمان وفيما يلي خراسان والغور والهند وفلاس وهذه صورة سيجستان *

واما مدنها وما يقع في اضعافها مما يحتاج الى معرفته فلها من المدن زرنج وكس ونه والطاق والغردس وخوش وفرة وحره ولشت وزردان وسروان والقان ولعس ودرعس ونل ولسلدل ونكواي وكهل وغرزة والعصر وسدومي واسفجاي وحامان ومدنها العظمى تسمى زرنج ولها مدينته ورض

وعلى المدينة حصن وخندق وعلى الرض أيضاً سور والماء الذى فى الخندق ينبع من مكانه ويقع فيه أيضاً ويصل من المياه ولها خمسة ابواب احدها الباب الجديد والاخر الباب العتيق وكلاهما يخرج منهما الى فارس وبينهما قرية والباب الثالث باب كركونه يخرج منه الى خراسان والباب الرابع باب ممسك يخرج منه الى لشت والباب الخامس تعرف بباب الطعام يخرج منه الى الرساتيق وامر هذه الابواب باب الطعام وهذه الابواب كلها جديد وللرض ثلاثة عشر باباً فمنها باب سدايخذ الى فارس ثم يليه باب جرجان ثم يليه باب سدرل ثم يليه باب شتارا ثم يليه باب سعبد ثم يليه باب يوحيدك ثم يليه باب الكاز ثم يليه باب ممسك ثم يليه باب كركونه ثم يليه باب اسدرلس ثم يليه باب عنجرة ثم يليه باب مارسدان ثم يليه باب رونكران وابنيتهما كلها طين ازاح معقودة لان الخشب بها يسوس ومسجد الجامع فى المدينة دون الرض واذا دخلت من باب فارس ودار الامارة فى الرض بين باب الطعام وبين باب فارس خارج المدينة والحلس فى المدينة عند مسجد الجامع وهناك أيضاً دار الامارة على ظهر مسجد الجامع وعند الحلس ولكنها نقلت الى الرض وهناك بين باب الطعام وبين باب فارس قصر يعقوب بن الليث وقصر لعمر بن الليث ودار الامارة فى دار يعقوب بن الليث وداخل المدينة بين باب كركونه وباب ممسك بئيرة عظيمة تسمى اول كانت خزانة بنها عمر بن الليث واسواق المدينة الداخلة حوالى مسجد الجامع وهى اسواق على غاية العمارة واسواق الرض عامرة منها سوق تسمى سوق عمر بن الليث وقفه على مسجد الجامع والبيمارستان والمسجد الحرام وغلة هذه السوق فى كل يوم نحو الف درهم وفى المدينة الداخلة انهار منها نهر يدخل من الباب العتيق والثانى ص من الباب الجديد والثالث يدخل من باب الطعام ومقدار هذه الانهار اذا جمعت ما يدير الرضى وعند مسجد الجامع حوضان عظيمان يدخلهما الماء الجار ويخرج ينصرف فى بيوت الناس وسرا ديبهم ومعظم دور المدينة والرض فيها ماء جاروساتين وفي روضها انهار تأخذ منها هذه الانهار التى تدخل المدينة والسوق ممتد من باب فارس من المدينة الى باب ميذا متصل بحونصف فرسخ وارضها مسبعة ورمال وهى حارة بها نخيل ولا يقع بها ثلوج وهى ارض سهالة لا يرى منها جبل واقرب جبالها بفاحية فرة وتشتد رياحهم وتدوم حتى انهم قد نصبوا عليها طواحين يديرها الهواء وينقل دماهم من

مكان الى مكان فلولوا انهم يحتملون فيها لطمت على القرى والمدن بها وبلغنى انهم اذا احبوا نقل الرمل من مكان الى مكان من غير ان يقع على الاراضى التى الى جانب الرمل جمعوا حول الرمل مثل الحائط من شوك وخشب وغيرهما بقدر ما يعلو على ذلك الرمل ويفتحون فى اسفله بابا فتدخله الريح ويثير على الرمل مثل الزويعه فيرتفع حتى يقع على مد البصر حيث لا يضرهم ويقال ان المدينة القديمة فى أيام العجم كانت فيما بين كرمان و سجستان اذا حوت اول بحذار اسكر من يسار الذهاب من سجستان الى كرمان على ثلث مراحل و ابيدتها وبعض بيوتها قائمة الى هذه الغاية واسم هذه المدينة رام شهرستان ويقال ان نهر سجستان كان يجري عليها فانقطع فانقلع عليها بثق مكان سكر من هذه مدد وانخفض الماء عنه ومال فتعطلت وتحول الناس عنها وبنوا رنج واما انهارها فان اعظم نهر لها هذه مدد ويخرج من ظهر بلد الغور حتى يخرج على حد رحى وبلدى الداور ثم يجري على لشت حتى ينتهى الى سجستان ثم يقع فى بحيرة زرة وزرة هذه بحيرة يتسع المياه فيها وينقص على قدر زيادة الماء ونقصانه وطولها نحو ثلاثين فرسخاً من ناحية كرس على طريق قهستان الى قطرة كرمان على طريق فارس وعرضها مقدار مرحلة وهي عذبة الماء ويرتفع منها سمك كثيرة وقصب وحواليها كلها قرى الا الوجه الذى يلي المفارة ونهر هذه مدد هو نهر اخذ من لشت الى ان ينتهى الى مرحلة من سجستان وتذشعب منها مقام اسم الماء فاول نهر يدشق منه نهر الطعام فيأخذ على الرساتيق حتى ينتهى الى حد مدسك ثم يأخذ منه نهر باشتروند فيسقى رساتيق كثيرة ثم يأخذ منه نهر يسمى ساروند فيجى على فرسخ من سجستان وهو النهر الذى يجرى فيه السفن من لشت الى سجستان اذا امتد الماء ولا يجرى اليهم السفن الا فى زيادة وانهار مدينة سجستان كلها من ساروند ثم ينحدر فيأخذ منه نهر سعده فيسقى مقدار ثلاثين قرية ثم يأخذ منه نهر يسمى مدلن فيسقى رساتيق كثيرة ثم يأخذ منه رالوفيسقى رساتيق كثيرة وما يبقى من هذا النهر يجرى فى نهر يسمى نول وقد سكر هناك سكر يمنع الماء ان يجرى الى بحيرة زرة حتى يجى المد فاذا جاءت ايام المد زال السكرود وقع فصل هذا النهر الى بحيرة زرة وعلى سكر هذه مدد على باب لشت جسر من السفن كما يكون على انهار العراق ويقع فى بحيرة زرة الفاصل من وادى فره وغيرها من تلك النواحي ومن انهار سجستان نهر فره يخرج من قرب الغور حتى يسقى تلك النواحي ويقع فضله

فى بحيرة زرة ونهر نسيك يخرج من قرب الغور فيسقى تلك الدواحي وقل
 مايفضل منه للبحيرة زرة وسجستان خصبة كثيرة الطعام والتمور والاعناب اهلها
 ظاهرو اليسار ويرتفع من مفازة سجستان فيما بينها وبين مكران غلة عظيمة
 من الحلتيت حتى انه قدغلب على طعامهم ويجعلونه فى عامة اطعمتهم
 وبالس اسم الناحية ومدينتها سري غيران الوالى مقيم بالقصر وسعدجان اكبر
 من القصور وزنج اسم الاقليم ومدينتها سحواى ولها من المدن كهل ورخج اقليم
 من بلدى الداور وبين بالس وعامتها صوافى يرتفع ليست المال منها مال
 عظيم ويتسع اهل تلك النواحي بغلاتها وهى على غاية الخصب والسعة وبلاد
 الداور اقليم خصب وهو ثغر للغور وبمس وحلج وشتك وحاسن وليس عليها
 سور وبها قلعة وبلد الداور اسم الاقليم ومدينتها نل ولها من المدن درمس
 وهننا على مجرا همد منذ على الشط غيران بمس وحلج وكابل والغور وهذه
 النواحي بعض هولاء قد اسلموا وبعضهم مسالمون وهى من الصرود والحلج
 صنف من الاتراك وقعوا فى قديم الايام الى الارض التى بين الهند ونواحي
 سجستان فى ظهر الغور وهم اصحاب نعم على خلق الاتراك وزبيهم ولسانهم
 واما لشت فانها مدينة ليس فى اعمال سجستان بعد زرنج اكبر منها الا انها وبيّة
 وزبيهم زى العراق يرجعون الى مروّة ويسارو بها متاجر الى بلد الهند والسند
 وبها نخيل واعناب وهى خصبة جدا واما الغزنى فانها مدينة صغيرة لها قرى
 ورساتيق وهى على مرحلة من سجستان عن يسار الذهب الى لشت على
 فرسخين من سرودن منها الصفارون الذين تغلبوا على فوارس وكرمان
 وخراسان وسجستان وكانوا اربعة اخوة يعقوب وعمر وظاهر وعلى بنو الليث
 فاما طاهر فانه قتل بباب بست واما يعقوب فانه مات بحدسابور بعد
 رجوعه من بغداد وقبرة هناك واما عمر بن الليث فانه قتل ببغداد وقبرة هناك
 واما على بن الليث فكان استا من الى رافع بجرجان ومات بدهستان وقبرة
 هناك ويعقوب كان اكبرهم وكان غلاما لبعض الصفارين واما عمر فانه كان
 مكاريا بلغه انه كان فى بعض ايامه بناءً وكان على بن الليث اصغرهم سنا
 وكان السبب فى خروجهم وارتفاع امرهم ان خالا لهم يسمى كثير بن رماذ كان
 قد يجمع اليه جمع فى وجوه الخوارج فحوصر فى قلعة تسمى قفيل وتخلص
 هولاء وقعوا الى ارض بست وكان تبلك الناحية رجل عدده جمع كثير يظهرون
 الحسبة فى الغزو وقاتل الخوارج يسمى درهم بن نصر وصار هولاء الاخوة فى

جملة اصحابه فقصودوا سيجستان والوالى بها الطاهرى وكان فى ضعف فذول على باب المدينة وكان درهم بن نصر هذا يظهر انه من المطوعة وانه قاصد بقتل الشراة محتسبا فاستمال العامة حتى مالوا اليه ودخل المدينة وخرج منها واليها الى بعض النواحي فتمكنوا من البلد وقتلوا الشراة وكان للشراة رئيس يعرف بعمار بن ياندر فانتدب لقتاله يعقوب فقتله وقتل عمارا وكان لا يحزبهم امر شديد الا انتدب له يعقوب فكان يرتفع ذلك الا منزله ما يحبه فاستمال اصحاب درهم بن نصر حتى قلده الرياسة وصار الامراء وكان درهم بن نصر بعد ذلك من جملة اصحابه وما زال مُحسناً الى درهم بن نصر حتى استاذنه فى الحج واقام ببغداد مدة ثم رجع رسولا من امير المؤمنين اليهم فقتله واستفحل امرهم بعد ذلك حتى استولوا على سيجستان وما يتصل بها من اطراف السند والهند ومهدوا تلك الثغور واسلم على يدى يعقوب خلق منهم ثم استولى بعد ذلك على كرمان و فارس و خورستان و بعض العراق وعلى خراسان واما الطاق فانها مدينة على مرحلة يكون على ظهر الجبال من سيجستان الى خراسان وهى مدينة صغيرة ولها رستاق وبها اعذاب كثيرة يتسع بها اهل سيجستان وخواش وهى من فرس على مرحلة عن يسار الذهاب الى بست وبينها وبين الطريق نحو نصف فرسخ وهى اكبر من فرس وبها نخيل واشجار وبها بالفرس مياه جارية وقنى واما فره فانها مدينة اكبر من هذه ولها رستاق يشمل على نحو من ستين قرية وبها نخيل وفواكه وزروع وعليها نهر فره و ابنتها طين وهى فى ارض سهلة وحرّة متصل بعمل فره عن يمين الذهاب من سيجستان الى خراسان على نحو من مرحلة وهى مدينة صغيرة نحو الفرس ولها قري و رستاق وهى خصبة وما واهم من القنى و ابنتهم من طين وسروان مدينة صغيرة نحو الغزنس الا انها اعمر من الغزنس وبها فواكه كثيرة ونخيل واعذاب وهى من بست على نحو مرحلتين احدى المنزلتين يسمى فيروزقند والاخر هرشروان على طريق بلدى الدوار والافان من بست على مرحلة وبها فواكه ونخيل وزروع واكثر اهلها حاكه وما واهم من انهار و بناوهم من طين وهى نحو الغزنس فى الكبروزقان هى اصغر من الغزنس وهى بقرب فيروزقند عن يمين الذهاب الى رنج واكثر غلاتها الملح ولهم مع ذلك زروع وفواكه ومياه جارية واما المسافات بها فان الطريق من سيجستان الى هراة اول مرحلة تسمى كركونه على ثلث فراسخ ومنها الى سيرا بعة فراسخ ويعبر على قنطرة يجرى فيها

ما فضل من عياد هند منذ ومن بسر الى جوين مرحلة ومن جوين الى بست ومنه الى كفجر مرحلة ومن كفجر الى سرمد مرحلة ومن سرمد الى قنطرة وادي فرة مرحلة ومن قنطرة الوادي الى فرة مرحلة ومن فرة الى درة مرحلة ومن درة الى كوسار مرحلة وهي اخر عمل سچستان ومن كوكسار الى حاستان وهي من الاسفرار مرحلة ومن حاستان الى فناء سرى مرحلة ومن فناء سرى الى الجبل الاسود مرحلة ومن الجبل الاسود الى حامان مرحلة ومن حامان الى هراة مرحلة واما الطريق من سچستان الى بست اول مرحلة الى راندوق ومن راندوق الى سرورن قرية عامرة سلطانية ومن سرورن الى حروري قرية عامرة سلطانية وبينهما نهر لاسك وعليها قنطرة معقودة من اجرو من حروري الى دهل والمنزل رباط من حدد هل ومن هذا الرباط المفازة فمَنْزِل منها رباط يسمى ارسور ومن ارسور الى رباط كرو وندرو ومن كرو وندرو الى رباط قهستان ومن رباط قهستان الى رباط عبدالله ومن رباط عبدالله الى بست ومن رباط دهل الى فرسخ من بست كلها مفازة واما الطريق من بست الى غزنه فان من بست الى رباط فيروز قند منزل ومنه الى رباط ميغون منزل ومنه الى رباط كندر منزل ثم الى مدينة الرخج المسماة فكهوى منزل ومنها الى نكن اباد منزل ثم الى خومسناه منزل ثم الى رباط سرام منزل ثم الى الاود وهو رباط منزل ثم الى رباط حنكل اباد منزل ثم الى قرية عرصر منزل ثم الى حاصار منزل وهو اول حد غزنه ثم الى قرية حساحى منزل ثم الى رباط هدوة منزل وهي قرية عامرة ثم الى غزنه منزل ومن سچستان الى بالس طريق على المفازة تاخذ من مدينة الرخج المسماة فكهوى الى رباط الحجر منه منزل ثم رباط حبلى منزل ثم الى رباط برمنزل ثم الى رباط اسحاب منزل واما الطريق من سچستان الى كرمان وفارس فان اول حد ينزل من سچستان حاروت والى رباط يسمى دارل ومن دارل الى نرين منزل ومنه الى كارمسك منزل وهما رباطان ثم الى رباط الداس ثم الى رباط القاضى منزل ثم الى رباط كوراعان منزل ثم الى سنج منزل وسنج مدينة من كرمان وحد سچستان اذا حرت كاد ينسك بينها وبين كندر رباط نباء عمرو وهذا المكان يعرف بقنطرة كرمان وليس هناك قنطرة ولكن تسمى كذلك ومائر المسافات بسچستان من سچستان الى حرة ثلاث مراحل بين فرة والغزس وبينها وبين فرة ايضا مرحلتان وبين نه وفرة نحو مرحلة راجحة وهي بحداثها مما يلى المفازة وبين كس وبين سچستان ثلاثون فرسخا مما يلى حد كرمان والطاق على طريق كس على خمسة فراسخ وخواش

عكس فرسخ من طريق بست وينده وبين القرنين منزل ومن بست الى سروان
مرحلتان على طريق بلاد الداور ثم تعبر هند مند على مرحلة من سروان فيدخل
بل ويمضي مرحلة الى روعس على شط هند مند كلاهما من جهة واحدة ومن
بل الى بعس يوم في بدلي بل ولسلدل في جنوبى بعس وفسكواى على ظهر
غزنه بيندها وبين كهل مقدار فرسخ عن غربى فسكواى ومن فسكواى الى سفتجان
ثلاث مراحل والقصر يحاذيها ويندها فرسخ ومن سفتجان الى سيوى مرحلتان

*Abstract of Registers of Temperature and Fall of Rain kept by
Medical Officers in different parts of India, by DR. LAMB.*

MY DEAR DR. SPRENGER,

I have the pleasure to send you, for presentation to the Society, Abstracts of Registers of Temperature and Fall of Rain chiefly obtained from observations by medical officers of this Establishment or on duty within the limits of the Presidency.

Coming from such variety of sources it is obvious that perfect reliance is not to be placed on them all, and I fear that in some instances the mean temperature is not very accurately set down. But on the other hand many of the Registers sent to the Medical Board, have been kept with great care, and besides the Items I have abstracted, there are minute details of the variations of atmospheric pressure, direction of the winds, and other matters not susceptible of being easily given in abstract.

The temperature given as the mean is in all cases the mean of the day, i. e. from sunrise or a little before it till sunset, and is from 2° to 4° above the mean of the twenty-four hours, as ascertained in a good many cases where I have had an opportunity of making the comparison.

Calcutta, 29th April, 1852.

G. LAMB.

Abstract of Mean Temperature of the Day and Fall of Rain, from Registers kept by

	Height above the level of the Sea.	Latitude.	Longitude.	January.		February.		March.		April.		May.	
				Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.
Calcutta,	18.11	22.33.01	88.20.34	71.2	0.07	..	2.41	85.5	1.05	88.7	3.75	92.9	0.08
Barrackpore,	22.42.35	88.25.4	72.5	0.24	70.5	1.17	85.7	0.24	90.	2.79	95.5	0.55
Hooghly,	22.53.24	88.26.34	68.5	0.95	68.	0.65	80.4	..	85.	2.10	89.	..
Jessore,	23.9	89.10.30	64.	0.40	72.	0.0	80.	0.0	86.	3.85	94.	0.50
Kishnaghur,	23.24.	88.22.20	70.	2.50	69.	1.20	94.	..	96.	2.60	99.	..
Burdwan,	23.13.10	87.52.20	70.5	0.30	76.5	1.10	83.	0.30	86.	0.40	90.	..
Moorshedabad, 76.	..	24.11.50	88.13.20	63.	0.20	65.5	1.65	79.2	..	83.	2.35	88.	2.55
Rungpore,	25.42.50	89.14.50	65.3	1.10	68.7	0.10	79.8	0.50	82.6	3.70	86.2	9.70
Bauliah,	24.23.15	88.33.45	66.3	..	71.6	0.60	81.3	0.20	85.9	0.23	90.8	0.32
Beerbhoom,	23.54.25	87.34.00	69.5	..	73.1	0.60	82.7	1.16	86.9	2.50	92.2	..
Bancoora,	23.14.8	87.6.31	71.9	0.90	74.	0.93	82.4	1.10	89.	4.22	95.	1.00
Balasore,	21.30.7	86.58.11	72.9	0.50	74.9	0.27	85.8	1.20	87.5	3.35	96.	0.09
Midnapore,	22.25.13	87.19.25	69.	0.26	69.	0.23	74.	1.54	81.5	1.74	87.	..
Poorie,	19.48.09	85.49.10	71.6	..	75.6	0.40	82.	..	85.	1.00	88.	0.50
Cuttack,	20.28.55	85.54.15	72.	0.10	78.	0.04	82.5	0.25	86.	1.66	94.	0.75
Dacca,	22.	23.43.10	90.23.40	67.3	0.69	71.	0.99	82.5	..	84.	4.28	88.2	2.73
Akyab,	20.8	92.56.	71.5	..	73.8	..	76.9	..	83.	..	85.1	11.34
Sandoway,	78.	..	81.	..	..	..	85.	0.50	83.5	15.18
Ramree,	65.5	..	66.	..	75.	..	77.5	..	81.	7.00
Chittagong,	22.20.30	91.47.30	67.7	..	72.9	1.90	80.3	..	81.7	2.55	80.6	7.46
Tipperah,	23.27.30	91.5.40	69.2	0.75	71.4	1.25	77.	..	82.1	5.50	83.3	3.12
Burisaul,	22.35.40	90.17.	66.	..	72.6	2.50	82.5	..	84.8	3.18	88.6	1.14
Pubna,	70.3	0.55	74.	1.60	80.7	..	84.2	2.30	87.5	..
Bogra,	61.	0.72	68.2	1.70	76.	1.22	83.5	1.20	86.8	3.35
Mymensing,	24.44.50	90.24.20	62.	0.75	64.7	3.25	75.1	0.50	77.3	5.30	82.8	7.25
Sylhet,	24.53.	91.50.30	67.7	0.30	69.6	4.50	76.5	2.15	77.7	19.35	81.5	43.35
Cherrapoonjee, 4500	..	25.16.35	91.43.55	53.7	0.75	55.1	3.05	65.3	1.30	67.1	27.60	69.3	115.15
Gwalpara,	26.11.	90.40.	64.2	0.70	66.1	0.70	76.1	1.05	77.6	10.20	79.3	15.10
Gowahuttee,	26.11.15	91.47.10	66.4	0.51	68.3	0.47	77.5	1.45	78.9	5.57	81.1	6.64
Cachar,	24.48.40	92.47.17	62.5	..	66.	..	76.7	..	77.7	12.11	81.6	27.78
Seeksagur,	60.	0.84	62.3	4.39	70.5	1.06	72.8	8.85	77.6	12.53
Tezpore,	26.36.45	92.50.10	65.2	..	65.2	1.87	74.	2.07	77.3	4.27	79.1	9.58
Debroghur,	27.31.45	95.1.	63.6	0.61	63.7	5.49	73.1	2.25	73.5	9.43	76.2	14.45
Nowgong A.	66.5	2.85	72.4	2.10	75.8	8.55	79.	8.85
Dinapore,	25.37.45	85.5.10	63.6	1.75	67.7	1.	78.5	2.	87.8	..	96.4	..
Tirhoot,	26.7.20	85.26.15	61.8	3.75	65.2	1.45	75.7	0.90	84.2	..	91.9	..
Dinagapore,	25.37.30	82.41.00	69.	0.80	71.	0.80	82.5	0.30	89.5	0.70	94.5	2.50
Parneah,	25.48.00	87.33.00	64.5	2.12	65.5	3.25	71.5	1.50	88.	2.00	84.5	0.75
Darjeeling, 7000	..	27.3	88.18.40	40.9	3.45	41.7	2.40	51.8	4.00	55.3	4.55	61.9	6.75
Sarun,	26.45.27	85.29.12	..	..	..	..	75.5	..	92.5	..	93.	..
Monghyr,	25.27.26	86.43.38	65.5	0.85	68.	1.25	76.5	0.20	84.5	..	92.5	1.40
Hazareebaugh,	24.0.0	85.24.20	64.3	0.	65.4	1.00	76.8	0.35	83.	0.40	89.1	0.50
Gyah,	24.48.44	85.3.16	70.	0.30	72.	1.25	79.8	..	91.	..	96.9	..

by

Medical Officers at Civil and Military Stations in Bengal and N. W. P., for 1851.

June.		July.		August.		September.		October.		November.		December.		
Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	
87.1	8.39	84.7	12.89	86.1	10.78	86.7	8.49	83.1	16.25	78.5	..	71.8	..	64.16
87.	6.04	83.5	9.71	87.	7.39	87.	3.82	84.5	10.80	74.9	..	67.3	..	42.75
85.	5.75	83.	9.60	84.5	4.20	84.5	2.75	82.7	10.00	71.2	..	62.5	..	36.00
94.	8.60	85.	9.90	91.	4.40	90.5	5.40	86.	7.15	80.	..	..	..	40.20
92.5	4.15	84.	23.	85.	10.75	85.	11.	84.	2.50	75.	..	66.	..	57.70
88.5	3.25	85.	8.85	86.8	5.20	87.2	2.55	82.	5.65	73.	0.60	..	..	28.20
85.5	4.61	82.7	10.67	88.	7.75	88.	3.60	83.	7.10	75.	0.00	68.	..	40.48
83.7	23.90	84.5	11.70	84.5	14.40	87.1	6.30	80.	3.20	79.	..	70.6	..	74.60
86.1	6.88	85.	11.56	87.	4.95	87.5	3.35	81.3	3.30	72.2	0.17	..	..	31.56
88.6	3.50	85.3	11.30	86.2	5.40	86.9	2.70	82.	4.90	75.3	..	69.7	..	32.06
90.6	4.43	86.7	8.76	88.7	2.75	88.2	4.05	..	2.90	73.5	..	73.7	..	31.04
95.5	3.22	88.	5.86	89.5	3.65	82.	3.40	83.	9.10	72.	0.15	55.5	..	30.79
86.5	3.10	81.5	4.44	84.	4.13	83.5	..	77.	7.34	69.	..	62.	..	22.78
86.7	4.50	85.4	14.30	86.2	7.35	85.6	4.45	83.	blown down.	76.1	..	72.6	..	
92.	7.31	84.	10.20	86.	12.11	86.	6.10	79.	11.65	..	..	75.	..	50.17
84.2	18.78	86.3	13.76	85.3	10.30	85.6	4.70	81.9	12.70	75.7	..	69.5	..	68.93
81.	59.54	83.7	22.43	83.4	27.58	84.	17.57	83.1	14.09	81.5	..	75.1	2.52	155.07
81.5	52.18	82.7	30.64	81.7	37.49	81.4	29.67	81.3	10.90	80.7	1.30	74.7	0.62	178.48
81.	17.30													
76.6	25.88	78.1	13.11	79.1	7.99	80.5	16.27	77.2	10.75	72.8	..	67.5	0.42	86.33
80.6	19.50	81.5	16.08	82.2	25.25	81.2	11.00	78.4	13.50	72.7	..	66.1	..	95.95
84.5	20.70	83.3	17.90	82.5	21.00	84.3	6.90	81.8	21.15	75.6	..	69.5	..	94.47
84.	8.90	82.8	7.65	85.2	6.20	85.4	6.10	81.6	5.75	73.	..	66.	..	39.05
84.5	14.65	..	7.95	..	8.40	..	6.25	..	6.00	..	..	..	..	51.44
82.3	35.25	84.5	20.00	85.1	20.38	85.5	6.52	81.7	10.70	74.5	..	67.3	..	109.90
81.1	39.70	82.5	33.50	82.6	28.30	83.1	17.85	78.4	20.40	73.9	..	69.	0.45	209.85
71.3	147.20	71.8	99.40	72.4	103.90	72.4	71.70	68.2	40.30	..	..	..	..	610.35
79.9	42.55	81.3	17.90	81.8	11.65	82.1	7.40	77.9	8.85	71.6	..	65.8	..	116.10
81.6	16.61	84.7	9.35	83.8	4.53	83.3	3.05	80.3	3.68	75.1	0.38	69.1	0.50	52.74
83.1	15.35	83.4	15.60	85.	8.94	84.7	9.32	80.9	11.26	76.1	2.00	68.3	0.48	102.84
82.6	16.35	84.4	10.43	84.1	16.40	84.1	7.40	79.2	6.38	71.4	0.05	65.8	0.50	85.18
82.	16.82	84.5	4.50	83.3	16.58	83.2	4.50	79.4	3.00	71.2	..	66.1	0.30	63.49
80.4	12.85	83.4	13.74	82.2	18.42	..	11.98	..	17.73	..	..	..	..	106.95
81.4	17.50	83.9	7.35	83.8	22.20	82.8	4.65	80.1	7.00	70.6	0.40	66.	2.00	83.45
90.5	4.50	86.2	3.75	86.6	6.75	85.4	7.50	81.5	13.75	71.	..	62.3	..	31.
88.1	3.50	85.8	8.45	86.3	7.33	84.5	3.50	80.	4.50	69.	..	62.2	..	33.38
88.	12.50	..	12.70	89.5	6.70	89.5	3.20	85.	6.50	80.	..	73.	..	46.70
85.6	9.75	85.5	15.12	84.5	11.80	86.	3.35	79.8	3.75	71.7	..	65.	..	53.39
62.5	31.00	63.7	27.15	64.3	16.70	63.2	19.60	55.8	9.40	50.4	0.10	44.8	0.10	125.20
89.9	..	86.4	4.55	..	..	83.5	8.90	80.2	3.40	63.	..	59.6	..	
90.	8.20	86.	6.65	86.5	3.36	85.	8.10	80.5	6.65	70.5	..	..	..	36.66
86.2	8.76	79.9	7.95	79.3	5.70	77.8	5.65	73.5	0.90	69.5	0.85	64.7	..	32.06
92.7	3.25	86.5	9.35	89.8	3.25	86.4	4.25	83.	2.50	65.3	0.50	65.2	..	24.65

Abstract of Mean Temperature of the Day and Fall of Rain from Registers kept by

	Height above the level of the Sea.	Latitude.	Longitude.	January.		February.		March.		April.		May.	
				Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.
Bhaugulpore,	25.14.50	87. 0.00	66.7	0.75	72.5	1.50	80. .	0.00	86.5	0.80	92.5	0.80
Benares,	25.18.26	83. 3.12	64.2	2.31	67.8	1.60	74.5	0.65	87.3	..	96.3	..
Goruckpore,	26.46.35	83.22 6	62.2	3.60	65.4	0.20	75. .	0.20	82.9	0.10	90.8	1.40
Azinghur,	26 32. .	83.13.20	64.3	3.80	66.9	1.08	76.1	0.60	81.9	0.80	84.8	..
Sultanpore,	1050	26.15.35	82. 6.40	65.5	..	70.6	..	83.4	..	92.2	..	101	..
Mirzapore,	25. 9.19	82.37.23	60. .	..	72.5	..	..	..	88. .	..	96. .	..
Ghazeepore,	25.34.25	83.37. 9	64.5	1.70	68. .	1.40	79. .	0.60	88. .	0.00	95. .	0.00
Juanpore,	25.43.48	82.44. 7	58.5	..	65. .	..	74. .	..	82.5	..	93. .	..
Cawnpore,	26.28.15	80.23.45	62.6	..	67.6	..	76.9	..	88.1	..	95.3	2.00
Futteghur,	27.23.20	79.40.25	59.7	4.95	64.7	0.66	75.5	0.57	85.0	0.11	92.6	0.29
Mynpoorie,	27. 1.24	79.13.53	59.5	..	72. .	..	83. .	..	93. .	..	103. .	..
Etawah,	26 45.31	79. 3.18	61. .	2.76	65.5	0.63	75.8	0.04	85.5	0.05	94.7	0.35
Humeerpore,	26. 7.49	79.47.22	..	1.50	58.5	0.80	78.5	..	95. .	0.30	93.5	..
Oorai,	86.5	..
Banda,	66.5	..	71. .	..	77.2	..	92. .	..	98.5	..
Futtepore,	26. 6. 2	80.24.18	58.5	..	61.2	..	70. .	..	80. .	..	90.2	..
Allahabad,	25.27.43	81.54.12	64.7	2.90	69. .	2.00	80.6	..	92.6	..	100.1	..
Saugor,	23.50. .	78.47.55	..	..	.. .	1.30	..	..	89. .	..	91.5	2.00
Dumoh,
Nursingpore,	62. .	..	67. .	..	..	..	95. .	..	100.1	0.31
Hoshungabad, .	..	22.45.43	77.45. 5	..	..	.. .	..	79. .	..	90. .	..	94. .	..
Baitool,	21.51.13	77.58.15	70.8	..	77.6	..	85.3	0.02	92.9	..	87.4	1.20
Seeonie,
Jubbulpore,	23. 9.39	79.59.43	67.4	0.50	72.3	0.90	79.5	..	94.5	..	99.8	0.47
Nowgong,	25. 3.30	79.31. .	65.7	3.92	70.4	0.66	..	..	91.6	..	96.4	0.33
Jhanssee,	80.8	..	88.6	..	96.2	..
Agra,	27.10.26	78. 5. 4	57.5	1.18	68. .	1.08	79.6	..	88.4	0.20	95.1	0.75
Neemuch,	24.27.30	75. 2.30	65.5	..	73.50	..	81.5	..	88.5	..	90. .	..
Muttra,	27.28.42	77.22. 3	59. .	..	.. .	..	77. .	..	..	..	..	..
Erinpore,	25. 9.15	73. 9.40	..	..	.. .	..	..	..	..	..	..	..
Allyghur,
Khewaree,	65.6	..	.. .	..	..	..	..	..	..	..
Beawur,	52. .	..	63.5	..	71.5	..	80.5	..	87. .	..
Bolundshuhur,
Ajmere,
Meerut,	29. 0.41	77.45. 3	58.5	..	64.8	..	74.1	..	83.1	0.60	86.1	..
Delhi,	28.31.23	77.13.39	55.2	2.60	62.2	0.30	71.1	2.60	86.4	0.96	98.6	0.05
Goorgaon,	27.53.24	77.24.35	..	..	76. .	..	..	..	92. .	3.30	104. .	..
Moradahad,	29.12.49	78.59.46	..	..	63.5	..	72.5	0.10	81.5	0.50	92. .	..
Bareilly,	28.12 17	79.34.45	60.5	2.85	63.0	2.90	76. .	0.22	82. .	..	..	..
Shajehanpore,	28. 1.35	79 35.11	58. .	..	64. .	..	74. .	..	81.5	..	89.5	..
Seharunpore,	29.57.18	77.35.30	48. .	..	55.5	..	61.5	..	72.5	..	84.3	..
Dehra,	30.18.58	78. 4.27	..	..	.. .	..	..	..	83.3	..	91.5	..
Almora,	5500	29.35.10	79.41.16	..	4.59	..	2.88	..	..	70.1	1.23	80.4	..

Medical Officers at Civil and Military Stations in Bengal and N. W. P., for 1851.

	June.		July.		August.		September.		October.		November.		December.		
	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	
90.5	10.45	87.	14.40	85.6	3.50	85.	2.35	82.	7.90	72.	..	66.5	..	42.45	
92.7	6.30	86.5	7.10	86.	5.57	84.5	9.68	81.6	3.85	73.1	..	68.3	..	37.06	
89.2	15.60	85.9	14.10	86.2	5.	84.7	9.90	80.8	11.60	70.4	..	63.2	..	61.70	
88.4	4.48	85.3	8.72	86.4	3.83	83.8	9.45	81.3	7.20	71.3	..	64.3	..	39.96	
96.1	..	88.	..	..	..	..	..	..	..	..	..	..	..	..
96.	..	..	..	..	..	..	..	84.5	..	71.	..	64.	..	..
94.5	8.40	88.	6.20	86.	5.70	86.	5.70	83.5	6.10	69.	0.00	64.	0.0	35.8	
94.	..	..	..	..	..	..	..	80.	..	68.	..	57.5	..	..
95.8	..	86.3	..	86.9	..	77.5	..	77.5	..	72.	..	..	..	..
92.2	3.22	84.3	15.35	85.5	5.43	83.4	6.27	78.5	0.44	69.4	..	63.4	..	37.29	
98.5	..	94.5	..	88.3	..	88.5	..	74.5	..	61.	..	..	..	..
94.7	0.87	91.5	11.40	87.5	9.23	82.5	6.16	76.5	0.29	70.7	0.01	62.7	0.05	31.84	
93.5	6.70	89.	12.63	87.	10.54	86.2	4.81	82.5	0.64	68.2	..	..	..	37.92
91.5	..	83.5	..	84.5	..	78.5	..	73.	..	65.	..	..	..	..
93.	..	86.	..	87.5	..	83.	..	80.5	..	62.5	..	..	..	..
91.	1.10	90.	8.50	..	..	..	6.	77.5	1.20	..	..	..	..	..
96.3	..	88.9	..	91.8	..	88.	..	81.	..	75.6	..	68.8	..	..
92.	2.38	86.	14.77	81.2	12.40	76.5	13.23	76.5	1.26	65.5	..	63.5	..	..
92.	..	..	..	82.5	..	79.	..	77.	..	68.	..	..	..	..
92.3	1.30	83.	17.67	81.5	7.38	80.1	10.96	79.2	0.41	74.3	0.59	68.5	..	..
90.	2.00	85.	14.	82.	9.50	81.	17.90	80.	1.25	70.	0.50	..	..	..
85.6	3.50	81.	14.50	78.7	8.90	79.5	3.70	82.5	..	67.8	0.20	70.8	..	32.02	
90.8	5.97	82.5	17.17	83.	3.93	79.6	8.22	79.5	1.34	70.8	0.37	65.5	..	38.87	
94.8	3.92	..	..	..	..	84.6	..	84.3	..	74.6	..	67.9	..	..
94.4	..	..	..	..	..	81.1	..	85.1	..	73.6	..	65.7	..	..
96.1	0.30	86.3	9.80	85.4	9.95	83.6	3.98	81.2	0.57	67.4	..	..	..	27.81
86.	5.00	..	..	..	..	..	..	..	..	..	..	..	..	..
..	
..	
..	
85.5	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	
93.5	4.00	86.7	14.70	87.5	5.10	85.	0.60	80.1	..	69.8	..	59.2	..	..
97.9	0.39	86.4	11.62	88.5	6.56	92.	..	81.5	..	68.8	..	59.6	..	25.08	

Medical Officers at Civil and Military Stations in Bengal and N. W. P. for 1851.

June.		July.		August.		September.		October.		November.		December.	
Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.	Mean temperature of the day.	Rain.
93.2	..	88.	8.85	88.5	..	83.2	..	79.	..	..	..	..	..
92.	..	86.	..	87.5	..	87.	..	79.	..	..	..	..	..
69.6	11.65	67.8	23.95	69.2	24.69	65.1	5.67	61.5	2.36	50.1	0.31	47.9	..
..	..	..	..	..	..	68.	..	64.1	0.95	49.6	2.10	46.3	..
96.3	1.30	87.1	7.80	90.7	3.10	91.6	0.60	84.3	..	67.1	..	62.2	..
69.2	3.50	64.6	17.95	63.4	11.65	66.3	..	60.2	..	52.3	..	46.1	..
80.9	..	75.5	2.40	73.7	..	70.	..	67.9	..	..	..	..	..
73.9	3.00	70.5	22.13	70.6	6.50	72.1	..	66.2	..	..	..	..	..
97.5	0.74	88.8	18.81	93.3	0.18	94.	..	86.1	..	70.8	..	61.	..
92.9	1.50	86.1	10.62	88.4	2.50	88.9	..	82.	..	66.6	..	61.6	0.50
85.	2.	85.	16.	..	..	..	..	..	..	..	..	..	..
..	2.16	..	6.27	..	..	..	..	..	..	..	..	..	..
..
..
..	..	85.5	..	..	..	..	..	..	..	..	..	..	..
94.3	0.54	86.	..	89.3	..	87.8	..	76.5	..	..	..	..	..
89.4	1.78	85.9	..	88.3	..	86.	..	76.2	..	66.	..	59.4	..
92.9	..	86.	..	85.6	..	86.6	..	80.9	..	64.6	..	59.2	0.12
91.2	3.00	81.8	..	81.9	..	83.5	..	78.4	..	59.5	1.90	57.4	0.50
94.	..	..	..	..	..	85.	..	..	..	61.5	..	..	..
98.2	..	86.4	..	89.1	..	87.5	..	77.6	..	64.	0.60	59.4	0.10
94.7	1.54	87.3	..	90.3	..	90.1	..	82.	..	66.4	1.09	60.4	..
94.8	1.25	87.5	..	90.6	..	..	..	82.6	..	68.5	1.35	60.6	0.25
..	..	95.5	..	88.7	..	87.1	..	74.	..	60.6	..	57.5	..
93.	0.98	92.1	..	90.4	..	..	..	..	..	57.9	..	58.	..
90.9	3.70	85.5	..	83.2	..	85.7	..	76.2	..	45.	..	..	..
69.5	..	68.4	..	66.7	..	62.1	..	62.8	..	..	..	..	..
97.	..	..	..	90.	..	84.	..	..	..	55.	..	..	..
95.5	..	88.3	..	92.1	..	88.7	..	85.	..	67.	..	61.	..
81.5	..	84.1	..	81.7	..	84.	..	..	..	64.5	..	58.6	..
..	..	..	..	..	..	..	..	..	..	62.	..	..	..
..	..	..	..	..	..	..	..	..	..	63.	..	..	..
95.5	..	..	..	89.5	..	82.	..	..	..	58.	..	..	..
99.4	..	92.3	..	92.1	..	92.5	..	86.9	..	68.4	..	..	..
86.5	..	..	..	86.5	..	81.	..	..	..	56.	..	..	..
95.	..	..	..	93.	..	93.	..	..	..	67.	..	..	..
..
..
..

Memo. by Major M. KITTOE, Archæological Enquirer, on some Ancient gold coins found near Benares, in 1851, and submitted by the Government of India for the inspection of the Members of the Asiatic Society.

These coins, which are all gold, of different weight and quality, were of a trove of ninety in number, that is, such number were delivered into the treasury. They were found, with about 70 more, by some villagers, buried in a copper vessel, in a mound on which stands the village of Bhursur, in purgunnah Bhurwal and Thana Chuundowlee, about twelve miles from Benares, between the Ganges and Caramanassa.

Bhursur is the site of one of the many ancient cities the names of which are lost. The mound is high and extensive—there is a tradition of its having been the stronghold of the rajahs of old. A trench was being dug, when amongst some bricks and rubbish the trove was made: for some time it was kept a secret, the copper vessel was destroyed, and about 70 of the coins were sold and melted down; a dispute arose, when one of the disputants gave information, and they were confiscated.

Of the whole number 71 were coins of Chandra Gupta, 69 being of one type of his coinage. Of these, four were retained of the most perfect and the remainder were sold by auction; they were all more or less defective, and but few of them had even a portion of the legend round the rim perfect, but the name चन्द्रा Chandra beneath the left arm of the figure was distinct in all of them.

Of the 32 coins retained a list is here annexed.

The two last coins on the list are decidedly of an unpublished type, the name is not clear in either.

Some doubt may exist as to the reading of one of the Kumaras—on the obverse the letter क, “ku” (query short for Kumara?) is clear, but on the reverse it seems to read Sri Mahesha or Mahendra perhaps: the affix “Sri” seems to point to its being rather the name of the prince than his title—which is sometimes Ajeet Mahendra
 ५६१४३३.

One of the coins reads $\text{श्री} \text{सु} \text{गु} \text{प} \text{त}$: "Sri Skanda Gupta" very distinctly—the name under the left arm is also clearly सु "Skanda," so that there can be no doubt of this specimen.

I must ever regret my inability, through press of other work to make accurate drawings of these coins, many of which are varieties not published hitherto in our Journal.

I would invite the attention of numismatologists to the variations in form of some of the letters of the Gupta alphabet, and to that of the letter "m" (म) in particular, which in later times was changed to म ;

for instance, समुद्र Samudra is written समु which has been read as मसु

"asa." The letter स "s" changes to स , which has also been mistaken for म "a," and wrong readings and deductions consequently have resulted. The use of this form of the m and s (म and स) is indicative of the later date of the coins on which found.

I am happy to place here on record that the result of following the plan proposed by me, of Government giving the bullion value of all coins thus found, has already proved beneficial, for a trove of silver coinage of the early Mogul Emperors was readily delivered up shortly after this collection of gold was paid for; and at the moment of writing these remarks I have before me twenty-one silver coins (Budhist) of a very early date, which will reach the Society in due course.

I would therefore suggest to the Society to address the Supreme Government upon this important matter, and obtain if possible decisive orders to all Revenue Officers and others to make known in their several districts that full value will be given for all troves of coinage—for it is lamentable to think what a vast number of such antiquities find their way into the melting pots of the village Sonars.

At the same time some inducement might be devised and held out for the due delivery in like manner of copper and brass plates, "Tamba patra," which are often either kept concealed under the supposition that they are "beejucs" or keys to hidden treasure, or sold to brasiers and melted down. I know of two plates in the Benares Division both of which I have failed in procuring. The one at Kapia near Gorruckpore, the other about 30 miles hence near the Soane river; the latter was broken in two through the ploughman, who found it, doubling it up. The former I believe was uninjured.

M. K.

Memo. by Mr. E. C. BAYLEY, Deputy Secretary to the Government of India, Foreign Department.

The whole of these coins belong to the Kanouj Guptas, a dynasty who reigned apparently from the end of the first to at least the beginning of the 4th century, A. D.

Their coins are not very rare or important, and most of the coins in the present list have been already figured and described.

The coin No. 3 of Kumara Gupta is apparently new, as those of Sri Prakasa if correctly described, but there is no such name in any list or inscription.

Nos. 4, and 5 of Chandra Gupta, 4 of Kumara Gupta and 3 of Mahendra Gupta are apparently unimportant varieties of known types.—With the exception of these seven coins the lists contain little perhaps worth sending to the Court of Directors.

The proposition for giving the full value to the finders seems a just one—and one by which Government cannot suffer much loss; if this were done, Mr. Thomas, who will pass Benares in December or January next,* might inspect all collected, and would then be able to give a decided opinion as to what coins might be worth sending to the Court—any rejected might be sold by public auction, due notice, with a short descriptive catalogue, being previously given.

8 kings of the dynasty are known.

(Signed,) E. B.

The references are given to the plates in Thomas's late *Kings of Guzerat*.

CHANDRA GUPTA.

1. 2. 3. Plate V. figure 20.
4. and 5. New apparently, but unimportant varieties of the above.
- No. 6. Plate VII. figure 6.

SAMUDRA GUPTA.

1. and 3. Plate IV. figure 16.
2. Plate V. figure 26, it is not a moon but a musical instrument which the figure holds.

* The Memo. is without date, but was probably written in Sept. or Oct. 1851.
—EDS.

4. Plate VI. figure 14.
- 5th. Reference in list to Asiatic Society's Journal.

KUMARA GUPTA.

1. Plate V. figure 28.
2. Plate VI. figure 20 probably Mahendra Gupta.
3. New—good.
4. Variety (unimportant) of No. 2.
5. Plate V. 30 also probably Mahendra Gupta.

SKANDA GUPTA.

1. and 2. Plate VI. figure 18.
3. Variety of above if not the same.

MAHENDRA GUPTA.

1. Plate VII. figure 5.
2. and 3. Plate VII. figure 4.

SRI PRAKASA.

1. and 2. New, if correctly read.

True Copies.

Signed, J. THORNTON,
Secretary to Govt. N. W. P.

True Copy.

Signed, E. A. READE,
Commissioner.

True Copy.

M. KITTOE, Major,
Archæological Enquirer.

N^{os} 1 to 9 were found in Benares; the rest in Jessore.

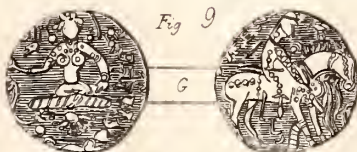
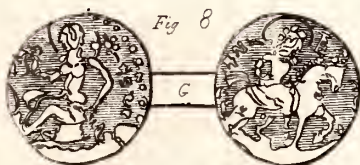
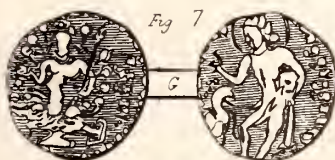
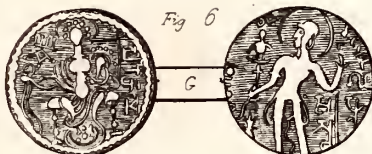
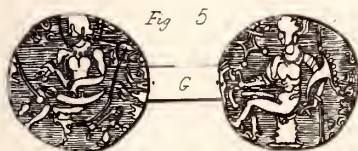
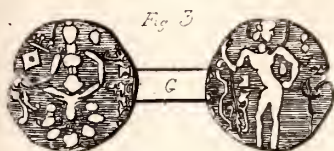
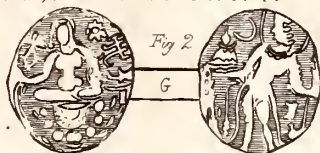
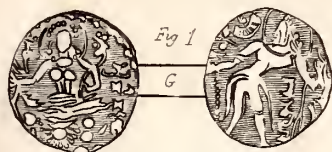


Fig 10 G

Fig 12 S

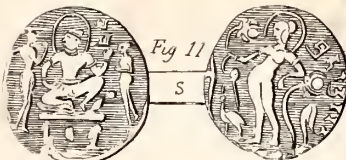


Fig 11 S





Descriptive Catalogue of Ancient Gold Coins found at Bhursur—(Continued.)

No.	Weight and quality.	Description.		Remarks.
		Obverse.	SAMUDRA GUPTA. Reverse.	
2	Grains 122.	Female figure seated on a throne turned to right; the moon (?) in her lap (?), no emblem, part of "Gupta" distinct, other portions of the inscription illegible.	Female figure seated on a stool turned to the right, Cornucopia on left arm, in right hand holds a noose; emblem 𑂔𑂩 ; legend "Samudra Gupta" $\text{𑂔𑂩𑂰𑂱𑂲𑂳𑂴𑂵𑂶𑂷𑂸𑂺𑂹𑂻𑂼𑂽𑂾𑂿𑃀𑃁𑃂𑃃𑃄𑃅𑃆𑃇𑃈𑃉𑃊𑃋𑃌𑃍𑃎𑃏𑃐𑃑𑃒𑃓𑃔𑃕𑃖𑃗𑃘𑃙𑃚𑃛𑃜𑃝𑃞𑃟𑃠𑃡𑃢𑃣𑃤𑃥𑃦𑃧𑃨𑃩𑃪𑃫𑃬𑃭𑃮𑃯𑃰𑃱𑃲𑃳𑃴𑃵𑃶𑃷𑃸𑃹𑃺𑃻𑃼𑃽𑃾𑃿𑄀𑄁𑄂𑄃𑄄𑄅𑄆𑄇𑄈𑄉𑄊𑄋𑄌𑄍𑄎𑄏𑄐𑄑𑄒𑄓𑄔𑄕𑄖𑄗𑄘𑄙𑄚𑄛𑄜𑄝𑄞𑄟𑄠𑄡𑄢𑄣𑄤𑄥𑄦𑄧𑄨𑄩𑄪𑄫𑄬𑄭𑄮𑄯𑄰𑄱𑄲𑄳𑄴𑄵𑄶𑄷𑄸𑄹𑄺𑄻𑄼𑄽𑄾𑄿𑅀𑅁𑅂𑅃𑅄𑅅𑅆𑅇𑅈𑅉𑅊𑅋𑅌𑅍𑅎𑅏𑅐𑅑𑅒𑅓𑅔𑅕𑅖𑅗𑅘𑅙𑅚𑅛𑅜𑅝𑅞𑅟𑅠𑅡𑅢𑅣𑅤𑅥𑅦𑅧𑅨𑅩𑅪𑅫𑅬𑅭𑅮𑅯𑅰𑅱𑅲𑅳𑅴𑅵𑅶𑅷𑅸𑅹𑅺𑅻𑅼𑅽𑅾𑅿𑆀𑆁𑆂𑆃𑆄𑆅𑆆𑆇𑆈𑆉𑆊𑆋𑆌𑆍𑆎𑆏𑆐𑆑𑆒𑆓𑆔𑆕𑆖𑆗𑆘𑆙𑆚𑆛𑆜𑆝𑆞𑆟𑆠𑆡𑆢𑆣𑆤𑆥𑆦𑆧𑆨𑆩𑆪𑆫𑆬𑆭𑆮𑆯𑆰𑆱𑆲𑆳𑆴𑆵𑆶𑆷𑆸𑆹𑆺𑆻𑆼𑆽𑆾𑆿𑇀𑇁𑇂𑇃𑇄𑇅𑇆𑇇𑇈𑇉𑇊𑇋𑇌𑇍𑇎𑇏𑇐𑇑𑇒𑇓𑇔𑇕𑇖𑇗𑇘𑇙𑇚𑇛𑇜𑇝𑇞𑇟𑇠𑇡𑇢𑇣𑇤𑇥𑇦𑇧𑇨𑇩𑇪𑇫𑇬𑇭𑇮𑇯𑇰𑇱𑇲𑇳𑇴𑇵𑇶𑇷𑇸𑇹𑇺𑇻𑇼𑇽𑇾𑇿𑈀𑈁𑈂𑈃𑈄𑈅𑈆𑈇𑈈𑈉𑈊𑈋𑈌𑈍𑈎𑈏𑈐𑈑𑈒𑈓𑈔𑈕𑈖𑈗𑈘𑈙𑈚𑈛𑈜𑈝𑈞𑈟𑈠𑈡𑈢𑈣𑈤𑈥𑈦𑈧𑈨𑈩𑈪𑈫𑈬𑈭𑈮𑈯𑈰𑈱𑈲𑈳𑈴𑈶𑈵𑈷𑈸𑈹𑈺𑈻𑈼𑈽𑈾𑈿𑉀𑉁𑉂𑉃𑉄𑉅𑉆𑉇𑉈𑉉𑉊𑉋𑉌𑉍𑉎𑉏𑉐𑉑𑉒𑉓𑉔𑉕𑉖𑉗𑉘𑉙𑉚𑉛𑉜𑉝𑉞𑉟𑉠𑉡𑉢𑉣𑉤𑉥𑉦𑉧𑉨𑉩𑉪𑉫𑉬𑉭𑉮𑉯𑉰𑉱𑉲𑉳𑉴𑉵𑉶𑉷𑉸𑉹𑉺𑉻𑉼𑉽𑉾𑉿𑊀𑊁𑊂𑊃𑊄𑊅𑊆𑊇𑊈𑊉𑊊𑊋𑊌𑊍𑊎𑊏𑊐𑊑𑊒𑊓𑊔𑊕𑊖𑊗𑊘𑊙𑊚𑊛𑊜𑊝𑊞𑊟𑊠𑊡𑊢𑊣𑊤𑊥𑊦𑊧𑊨𑊩𑊪𑊫𑊬𑊭𑊮𑊯𑊰𑊱𑊲𑊳𑊴𑊵𑊶𑊷𑊸𑊹𑊺𑊻𑊼𑊽𑊾𑊿𑋀𑋁𑋂𑋃𑋄𑋅𑋆𑋇𑋈𑋉𑋊𑋋𑋌𑋍𑋎𑋏𑋐𑋑𑋒𑋓𑋔𑋕𑋖𑋗𑋘𑋙𑋚𑋛𑋜𑋝𑋞𑋟𑋠𑋡𑋢𑋣𑋤𑋥𑋦𑋧𑋨𑋩𑋪𑋫𑋬𑋭𑋮𑋯𑋰𑋱𑋲𑋳𑋴𑋵𑋶𑋷𑋸𑋹𑋺𑋻𑋼𑋽𑋾𑋿𑌀𑌁𑌂𑌃𑌄𑌅𑌆𑌇𑌈𑌉𑌊𑌋𑌌𑌍𑌎𑌏𑌐𑌑𑌒𑌓𑌔𑌕𑌖𑌗𑌘𑌙𑌚𑌛𑌜𑌝𑌞𑌟𑌠𑌡𑌢𑌣𑌤𑌥𑌦𑌧𑌨𑌩𑌪𑌫𑌬𑌭𑌮𑌯𑌰𑌱𑌲𑌳𑌴𑌵𑌶𑌷𑌸𑌹𑌺𑌻𑌼𑌽𑌾𑌿𑍀𑍁𑍂𑍃𑍄𑍅𑍆𑍇𑍈𑍉𑍊𑍋𑍌𑍍𑍎𑍏𑍐𑍑𑍒𑍓𑍔𑍕𑍖𑍗𑍘𑍙𑍚𑍛𑍜𑍝𑍞𑍟𑍠𑍡𑍢𑍣𑍤𑍥𑍦𑍧𑍨𑍩𑍪𑍫𑍬𑍭𑍮𑍯𑍰𑍱𑍲𑍳𑍴𑍵𑍶𑍷𑍸𑍹𑍺𑍻𑍼𑍽𑍾𑍿𑎀𑎁𑎂𑎃𑎄𑎅𑎆𑎇𑎈𑎉𑎊𑎋𑎌𑎍𑎎𑎏𑎐𑎑𑎒𑎓𑎔𑎕𑎖𑎗𑎘𑎙𑎚𑎛𑎜𑎝𑎞𑎟𑎠𑎡𑎢𑎣𑎤𑎥𑎦𑎧𑎨𑎩𑎪𑎫𑎬𑎭𑎮𑎯𑎰𑎱𑎲𑎳𑎴𑎵𑎶𑎷𑎸𑎹𑎺𑎻𑎼𑎽𑎾𑎿𑏀𑏁𑏂𑏃𑏄𑏅𑏆𑏇𑏈𑏉𑏊𑏋𑏌𑏍𑏎𑏏𑏐𑏑𑏒𑏓𑏔𑏕𑏖𑏗𑏘𑏙𑏚𑏛𑏜𑏝𑏞𑏟𑏠𑏡𑏢𑏣𑏤𑏥𑏦𑏧𑏨𑏩𑏪𑏫𑏬𑏭𑏮𑏯𑏰𑏱𑏲𑏳𑏴𑏵𑏶𑏷𑏸𑏹𑏺𑏻𑏼𑏽𑏾𑏿𑑐𑑁𑑂𑑃𑑄𑑅𑑆𑑇𑑈𑑉𑑊𑑋𑑌𑑍𑑎𑑏𑑐𑑑𑑒𑑓𑑔𑑕𑑖𑑗𑑘𑑙𑑚𑑛𑑜𑑝𑑞𑑟𑑠𑑡𑑢𑑣𑑤𑑥𑑦𑑧𑑨𑑩𑑪𑑫𑑬𑑭𑑮𑑯𑑰𑑱𑑲𑑳𑑴𑑵𑑶𑑷𑑸𑑹𑑺𑑻𑑼𑑽𑑾𑑿𑒀𑒁𑒂𑒃𑒄𑒅𑒆𑒇𑒈𑒉𑒊𑒋𑒌𑒍𑒎𑒏𑒐𑒑𑒒𑒓𑒔𑒕𑒖𑒗𑒘𑒙𑒚𑒛𑒜𑒝𑒞𑒟𑒠𑒡𑒢𑒣𑒤𑒥𑒦𑒧𑒨𑒩𑒪𑒫𑒬𑒭𑒮𑒯𑒰𑒱𑒲𑒳𑒴𑒵𑒶𑒷𑒸𑒻𑒻𑒼𑒽𑒾𑒿𑓀𑓁𑓃𑓂𑓄𑓅𑓆𑓇𑓈𑓉𑓊𑓋𑓌𑓍𑓎𑓏𑓐𑓑𑓒𑓓𑓔𑓕𑓖𑓗𑓘𑓙𑓚𑓛𑓜𑓝𑓞𑓟𑓠𑓡𑓢𑓣𑓤𑓥𑓦𑓧𑓨𑓩𑓪𑓫𑓬𑓭𑓮𑓯𑓰𑓱𑓲𑓳𑓴𑓵𑓶𑓷𑓸𑓹𑓺𑓻𑓼𑓽𑓾𑓿𑔀𑔁𑔂𑔃𑔄𑔅𑔆𑔇𑔈𑔉𑔊𑔋𑔌𑔍𑔎𑔏𑔐𑔑𑔒𑔓𑔔𑔕𑔖𑔗𑔘𑔙𑔚𑔛𑔜𑔝𑔞𑔟𑔠𑔡𑔢𑔣𑔤𑔥𑔦𑔧𑔨𑔩𑔪𑔫𑔬𑔭𑔮𑔯𑔰𑔱𑔲𑔳𑔴𑔵𑔶𑔷𑔸𑔹𑔺𑔻𑔼𑔽𑔾𑔿𑕀𑕁𑕂𑕃𑕄𑕅𑕆𑕇𑕈𑕉𑕊𑕋𑕌𑕍𑕎𑕏𑕐𑕑𑕒𑕓𑕔𑕕𑕖𑕗𑕘𑕙𑕚𑕛𑕜𑕝𑕞𑕟𑕠𑕡𑕢𑕣𑕤𑕥𑕦𑕧𑕨𑕩𑕪𑕫𑕬𑕭𑕮𑕯𑕰𑕱𑕲𑕳𑕴𑕵𑕶𑕷𑕸𑕹𑕺𑕻𑕼𑕽𑕾𑕿𑖀𑖁𑖂𑖃𑖄𑖅𑖆𑖇𑖈𑖉𑖊𑖋𑖌𑖍𑖎𑖏𑖐𑖑𑖒𑖓𑖔𑖕𑖖𑖗𑖘𑖙𑖚𑖛𑖜𑖝𑖞𑖟𑖠𑖡𑖢𑖣𑖤𑖥𑖦𑖧𑖨𑖩𑖪𑖫𑖬𑖭𑖮𑖯𑖰𑖱𑖲𑖳𑖴𑖵𑖶𑖷𑖸𑖹𑖺𑖻𑖼𑖽𑖾𑗀𑗁𑗂𑗃𑗄𑗅𑗆𑗇𑗈𑗉𑗊𑗋𑗌𑗍𑗎𑗏𑗐𑗑𑗒𑗓𑗔𑗕𑗖𑗗𑗘𑗙𑗚𑗛𑗜𑗝𑗞𑗟𑗠𑗡𑗢𑗣𑗤𑗥𑗦𑗧𑗨𑗩𑗪𑗫𑗬𑗭𑗮𑗯𑗰𑗱𑗲𑗳𑗴𑗵𑗶𑗷𑗸𑗹𑗺𑗻𑗼𑗽𑗾𑗿𑘀𑘁𑘂𑘃𑘄𑘅𑘆𑘇𑘈𑘉𑘊𑘋𑘌𑘍𑘎𑘏𑘐𑘑𑘒𑘓𑘔𑘕𑘖𑘗𑘘𑘙𑘚𑘛𑘜𑘝𑘞𑘟𑘠𑘡𑘢𑘣𑘤𑘥𑘦𑘧𑘨𑘩𑘪𑘫𑘬𑘭𑘮𑘯𑘰𑘱𑘲𑘳𑘴𑘵𑘶𑘷𑘸𑘹𑘺𑘻𑘼𑘽𑘾𑘿𑙀𑙁𑙂𑙃𑙄𑙅𑙆𑙇𑙈𑙉𑙊𑙋𑙌𑙍𑙎𑙏𑙐𑙑𑙒𑙓𑙔𑙕𑙖𑙗𑙘𑙙𑙚𑙛𑙜𑙝𑙞𑙟𑙠𑙡𑙢𑙣𑙤𑙥𑙦𑙧𑙨𑙩𑙪𑙫𑙬𑙭𑙮𑙯𑙰𑙱𑙲𑙳𑙴𑙵𑙶𑙷𑙸𑙹𑙺𑙻𑙼𑙽𑙾𑙿𑚀𑚁𑚂𑚃𑚄𑚅𑚆𑚇𑚈𑚉𑚊𑚋𑚌𑚍𑚎𑚏𑚐𑚑𑚒𑚓𑚔𑚕𑚖𑚗𑚘𑚙𑚚𑚛𑚜𑚝𑚞𑚟𑚠𑚡𑚢𑚣𑚤𑚥𑚦𑚧𑚨𑚩𑚪𑚫𑚬𑚭𑚮𑚯𑚰𑚱𑚲𑚳𑚴𑚵𑚷𑚶𑚸𑚹𑚺𑚻𑚼𑚽𑚾𑚿𑛀𑛁𑛂𑛃𑛄𑛅𑛆𑛇𑛈𑛉𑛊𑛋𑛌𑛍𑛎𑛏𑛐𑛑𑛒𑛓𑛔𑛕𑛖𑛗𑛘𑛙𑛚𑛛𑛜𑛝𑛞𑛟𑛠𑛡𑛢𑛣𑛤𑛥𑛦𑛧𑛨𑛩𑛪𑛫𑛬𑛭𑛮𑛯𑛰𑛱𑛲𑛳𑛴𑛵𑛶𑛷𑛸𑛹𑛺𑛻𑛼𑛽𑛾𑛿𑜀𑜁𑜂𑜃𑜄𑜅𑜆𑜇𑜈𑜉𑜊𑜋𑜌𑜍𑜎𑜏𑜐𑜑𑜒𑜓𑜔𑜕𑜖𑜗𑜘𑜙𑜚𑜛𑜜𑜝𑜞𑜟𑜠𑜡𑜢𑜣𑜤𑜥𑜦𑜧𑜨𑜩𑜪𑜫𑜬𑜭𑜮𑜯𑜰𑜱𑜲𑜳𑜴𑜵𑜶𑜷𑜸𑜹𑜺𑜻𑜼𑜽𑜾𑜿𑝀𑝁𑝂𑝃𑝄𑝅𑝆𑝇𑝈𑝉𑝊𑝋𑝌𑝍𑝎𑝏𑝐𑝑𑝒𑝓𑝔𑝕𑝖𑝗𑝘𑝙𑝚𑝛𑝜𑝝𑝞𑝟𑝠𑝡𑝢𑝣𑝤𑝥𑝦𑝧𑝨𑝩𑝪𑝫𑝬𑝭𑝮𑝯𑝰𑝱𑝲𑝳𑝴𑝵𑝶𑝷𑝸𑝹𑝺𑝻𑝼𑝽𑝾𑝿𑞀𑞁𑞂𑞃𑞄𑞅𑞆𑞇𑞈𑞉𑞊𑞋𑞌𑞍𑞎𑞏𑞐𑞑𑞒𑞓𑞔𑞕𑞖𑞗𑞘𑞙𑞚𑞛𑞜𑞝𑞞𑞟𑞠𑞡𑞢𑞣𑞤𑞥𑞦𑞧𑞨𑞩𑞪𑞫𑞬𑞭𑞮𑞯𑞰𑞱𑞲𑞳𑞴𑞵𑞶𑞷𑞸𑞹𑞺𑞻𑞼𑞽𑞾𑞿𑟀𑟁𑟂𑟃𑟄𑟅𑟆𑟇𑟈𑟉𑟊𑟋𑟌𑟍𑟎𑟏𑟐𑟑𑟒𑟓𑟔𑟕𑟖𑟗𑟘𑟙𑟚𑟛𑟜𑟝𑟞𑟟𑟠𑟡𑟢𑟣𑟤𑟥𑟦𑟧𑟨𑟩𑟪𑟫𑟬𑟭𑟮𑟯𑟰𑟱𑟲𑟳𑟴𑟵𑟶𑟷𑟸𑟹𑟺𑟻𑟼𑟽𑟾𑟿𑠀𑠁𑠂𑠃𑠄𑠅𑠆𑠇𑠈𑠉𑠊𑠋𑠌𑠍𑠎𑠏𑠐𑠑𑠒𑠓𑠔𑠕𑠖𑠗𑠘𑠙𑠚𑠛𑠜𑠝𑠞𑠟𑠠𑠡𑠢𑠣𑠤𑠥𑠦𑠧𑠨𑠩𑠪𑠫𑠬𑠭𑠮𑠯𑠰𑠱𑠲𑠳𑠴𑠵𑠶𑠷𑠸𑠺𑠹𑠻𑠼𑠽𑠾𑠿𑡀𑡁𑡂𑡃𑡄𑡅𑡆𑡇𑡈𑡉𑡊𑡋𑡌𑡍𑡎𑡏𑡐𑡑𑡒𑡓𑡔𑡕𑡖𑡗𑡘𑡙𑡚𑡛𑡜𑡝𑡞𑡟𑡠𑡡𑡢𑡣𑡤𑡥𑡦𑡧𑡨𑡩𑡪𑡫𑡬𑡭𑡮𑡯𑡰𑡱𑡲𑡳𑡴𑡵𑡶𑡷𑡸𑡹𑡺𑡻𑡼𑡽𑡾𑡿𑢀𑢁𑢂𑢃𑢄𑢅𑢆𑢇𑢈𑢉𑢊𑢋𑢌𑢍𑢎𑢏𑢐𑢑𑢒𑢓𑢔𑢕𑢖𑢗𑢘𑢙𑢚𑢛𑢜𑢝𑢞𑢟𑢠𑢡𑢢𑢣𑢤𑢥𑢦𑢧𑢨𑢩𑢪𑢫𑢬𑢭𑢮𑢯𑢰𑢱𑢲𑢳𑢴𑢵𑢶𑢷𑢸𑢹𑢺𑢻𑢼𑢽𑢾𑢿𑣀𑣁𑣂𑣃𑣄𑣅𑣆𑣇𑣈𑣉𑣊𑣋𑣌𑣍𑣎𑣏𑣐𑣑𑣒𑣓𑣔𑣕𑣖𑣗𑣘𑣙𑣚𑣛𑣜𑣝𑣞𑣟𑣠𑣡𑣢𑣣𑣤𑣥𑣦𑣧𑣨𑣩𑣪𑣫𑣬𑣭𑣮𑣯𑣰𑣱𑣲𑣳𑣴𑣵𑣶𑣷𑣸𑣹𑣺𑣻𑣼𑣽𑣾𑣿𑤀𑤁𑤂𑤃𑤄𑤅𑤆𑤇𑤈𑤉𑤊𑤋𑤌𑤍𑤎𑤏𑤐𑤑𑤒𑤓𑤔𑤕𑤖𑤗𑤘𑤙𑤚𑤛𑤜𑤝𑤞𑤟𑤠𑤡𑤢𑤣𑤤𑤥𑤦𑤧𑤨𑤩𑤪𑤫𑤬𑤭𑤮𑤯𑤰𑤱𑤲𑤳𑤴𑤵𑤶𑤷𑤸𑤹𑤺𑤻𑤼𑤽𑤾𑤿𑥀𑥁𑥂𑥃𑥄𑥅𑥆𑥇𑥈𑥉𑥊𑥋𑥌𑥍𑥎𑥏𑥐𑥑𑥒𑥓𑥔𑥕𑥖𑥗𑥘𑥙𑥚𑥛𑥜𑥝𑥞𑥟𑥠𑥡𑥢𑥣𑥤𑥥𑥦𑥧𑥨𑥩𑥪𑥫𑥬𑥭𑥮𑥯𑥰𑥱𑥲𑥳𑥴𑥵𑥶𑥷𑥸𑥹𑥺𑥻𑥼𑥽𑥾𑥿𑦀𑦁𑦂𑦃𑦄𑦅𑦆𑦇𑦈𑦉𑦊𑦋𑦌𑦍𑦎𑦏𑦐𑦑𑦒𑦓𑦔𑦕𑦖𑦗𑦘𑦙𑦚𑦛𑦜𑦝𑦞𑦟𑦠𑦡𑦢𑦣𑦤𑦥𑦦𑦧𑦨𑦩𑦪𑦫𑦬𑦭𑦮𑦯𑦰𑦱𑦲𑦳𑦴𑦵𑦶𑦷𑦸𑦹𑦺𑦻𑦼𑦽𑦾𑦿𑧀𑧁𑧂𑧃𑧄𑧅𑧆𑧇𑧈𑧉𑧊𑧋𑧌𑧍𑧎𑧏𑧐𑧑𑧒𑧓𑧔𑧕𑧖𑧗𑧘𑧙𑧚𑧛𑧜𑧝𑧞𑧟𑧠𑧡𑧢𑧣𑧤𑧥𑧦𑧧𑧨𑧩𑧪𑧫𑧬𑧭𑧮𑧯𑧰𑧱𑧲𑧳𑧴𑧵𑧶𑧷𑧸𑧹𑧺𑧻𑧼𑧽𑧾𑧿𑨀𑨁𑨂𑨃𑨄𑨅𑨆𑨇𑨈𑨉𑨊𑨋𑨌𑨍𑨎𑨏𑨐𑨑𑨒𑨓𑨔𑨕𑨖𑨗𑨘𑨙𑨚𑨛𑨜𑨝𑨞𑨟𑨠𑨡𑨢𑨣𑨤𑨥𑨦𑨧𑨨𑨩𑨪𑨫𑨬𑨭𑨮𑨯𑨰𑨱𑨲𑨳𑨴𑨵𑨶𑨷𑨸𑨹𑨺𑨻𑨼𑨽𑨾𑨿𑩀𑩁𑩂𑩃𑩄𑩅𑩆𑩇𑩈𑩉𑩊𑩋𑩌𑩍𑩎𑩏𑩐𑩑𑩒𑩓𑩔𑩕𑩖𑩗𑩘𑩙𑩚𑩛𑩜𑩝𑩞𑩟𑩠𑩡𑩢𑩣𑩤𑩥𑩦𑩧𑩨𑩩𑩪𑩫𑩬𑩭𑩮𑩯𑩰𑩱𑩲𑩳𑩴𑩵𑩶𑩷𑩸𑩹𑩺𑩻𑩼𑩽𑩾𑩿𑪀𑪁𑪂𑪃𑪄𑪅𑪆𑪇𑪈𑪉𑪊𑪋𑪌𑪍𑪎𑪏𑪐𑪑𑪒𑪓𑪔𑪕𑪖𑪗𑪘𑪙𑪚𑪛𑪜𑪝𑪞𑪟𑪠𑪡𑪢𑪣𑪤𑪥𑪦𑪧𑪨𑪩𑪪𑪫𑪬𑪭𑪮𑪯𑪰𑪱𑪲𑪳𑪴𑪵𑪶𑪷𑪸𑪹𑪺𑪻𑪼𑪽𑪾𑪿𑫀𑫁𑫂𑫃𑫄𑫅𑫆𑫇𑫈𑫉𑫊𑫋𑫌𑫍𑫎𑫏𑫐𑫑𑫒𑫓𑫔𑫕𑫖𑫗𑫘𑫙𑫚𑫛𑫜𑫝𑫞𑫟𑫠𑫡𑫢𑫣𑫤𑫥𑫦𑫧𑫨𑫩𑫪𑫫𑫬𑫭𑫮𑫯𑫰𑫱𑫲𑫳𑫴𑫵𑫶𑫷𑫸𑫹𑫺𑫻𑫼𑫽𑫾𑫿𑬀𑬁𑬂𑬃𑬄𑬅𑬆𑬇𑬈𑬉𑬊𑬋𑬌𑬍𑬎𑬏𑬐𑬑𑬒𑬓𑬔𑬕𑬖𑬗𑬘𑬙𑬚𑬛𑬜𑬝𑬞𑬟𑬠𑬡𑬢𑬣𑬤𑬥𑬦𑬧𑬨𑬩𑬪𑬫𑬬𑬭𑬮𑬯𑬰𑬱𑬲𑬳𑬵𑬶𑬷𑬸𑬹𑬺𑬻𑬼𑬽𑬾𑬿𑭀𑭁𑭂𑭃𑭄𑭅𑭆𑭇𑭈𑭉𑭊𑭋𑭌𑭍𑭎𑭏𑭐𑭑𑭒𑭓𑭔𑭕𑭖𑭗𑭘𑭙𑭚𑭛𑭜𑭝𑭞𑭟𑭠𑭡𑭢𑭣𑭤𑭥𑭦𑭧𑭨𑭩𑭪𑭫𑭬𑭭𑭮𑭯𑭰𑭱𑭲𑭳𑭴𑭵𑭶𑭷𑭸𑭹𑭺𑭻𑭼𑭽𑭾𑭿𑮀𑮁𑮂𑮃𑮄𑮅𑮆𑮇𑮈𑮉𑮊𑮋𑮌𑮍𑮎𑮏𑮐𑮑𑮒𑮓𑮔𑮕𑮖𑮗𑮘𑮙𑮚𑮛𑮜𑮝𑮞𑮟𑮠𑮡𑮢𑮣𑮤𑮥𑮦𑮧𑮨𑮩𑮪𑮫𑮬𑮭𑮮𑮯𑮰𑮱𑮲𑮳𑮴𑮵𑮶𑮷𑮸𑮹𑮺𑮻𑮼𑮽𑮾𑮿𑯀𑯁𑯂𑯃$	

KUMARA GUPTA.

C 1	Grains 124½. Raja shooting an arrow into a Lion's extended jaws; legend 𑀘 for "Kumara;" other inscription imperfect.	Female bent to the right, holding her right hand to a Peacock; in left hand holds a lotus; emblem 𑀘. She stands apparently on a snake: legend 𑀘𑀓𑀭𑀮𑀯𑀰𑀱𑀲𑀳𑀴𑀵𑀶𑀷𑀸𑀹𑀺𑀻𑀼𑀽𑀾𑀿𑁀𑁁𑁂𑁃𑁄𑁅𑁆𑁇𑁈𑁉𑁊𑁋𑁌𑁍𑁎𑁏𑁐𑁑𑁒𑁓𑁔𑁕𑁖𑁗𑁘𑁙𑁚𑁛𑁜𑁝𑁞𑁟𑁠𑁡𑁢𑁣𑁤𑁥𑁦𑁧𑁨𑁩𑁪𑁫𑁬𑁭𑁮𑁯𑁰𑁱𑁲𑁳𑁴𑁵𑁶𑁷𑁸𑁹𑁺𑁻𑁼𑁽𑁾𑁿𑂀𑂁𑂂𑂃𑂄𑂅𑂆𑂇𑂈𑂉𑂊𑂋𑂌𑂍𑂎𑂏𑂐𑂑𑂒𑂓𑂔𑂕𑂖𑂗𑂘𑂙𑂚𑂛𑂜𑂝𑂞𑂟𑂠𑂡𑂢𑂣𑂤𑂥𑂦𑂧𑂨𑂩𑂪𑂫𑂬𑂭𑂮𑂯𑂰𑂱𑂲𑂳𑂴𑂵𑂶𑂷𑂸𑂺𑂹𑂻𑂼𑂽𑂾𑂿𑃀𑃁𑃂𑃃𑃄𑃅𑃆𑃇𑃈𑃉𑃊𑃋𑃌𑃍𑃎𑃏𑃐𑃑𑃒𑃓𑃔𑃕𑃖𑃗𑃘𑃙𑃚𑃛𑃜𑃝𑃞𑃟𑃠𑃡𑃢𑃣𑃤𑃥𑃦𑃧𑃨𑃩𑃪𑃫𑃬𑃭𑃮𑃯𑃰𑃱𑃲𑃳𑃴𑃵𑃶𑃷𑃸𑃹𑃺𑃻𑃼𑃽𑃾𑃿𑄀𑄁𑄂𑄃𑄄𑄅𑄆𑄇𑄈𑄉𑄊𑄋𑄌𑄍𑄎𑄏𑄐𑄑𑄒𑄓𑄔𑄕𑄖𑄗𑄘𑄙𑄚𑄛𑄜𑄝𑄞𑄟𑄠𑄡𑄢𑄣𑄤𑄥𑄦𑄧𑄨𑄩𑄪𑄫𑄬𑄭𑄮𑄯𑄰𑄱𑄲𑄳𑄴𑄵𑄶𑄷𑄸𑄹𑄺𑄻𑄼𑄽𑄾𑄿𑅀𑅁𑅂𑅃𑅄𑅅𑅆𑅇𑅈𑅉𑅊𑅋𑅌𑅍𑅎𑅏𑅐𑅑𑅒𑅓𑅔𑅕𑅖𑅗𑅘𑅙𑅚𑅛𑅜𑅝𑅞𑅟𑅠𑅡𑅢𑅣𑅤𑅥𑅦𑅧𑅨𑅩𑅪𑅫𑅬𑅭𑅮𑅯𑅰𑅱𑅲𑅳𑅴𑅵𑅶𑅷𑅸𑅹𑅺𑅻𑅼𑅽𑅾𑅿𑆀𑆁𑆂𑆃𑆄𑆅𑆆𑆇𑆈𑆉𑆊𑆋𑆌𑆍𑆎𑆏𑆐𑆑𑆒𑆓𑆔𑆕𑆖𑆗𑆘𑆙𑆚𑆛𑆜𑆝𑆞𑆟𑆠𑆡𑆢𑆣𑆤𑆥𑆦𑆧𑆨𑆩𑆪𑆫𑆬𑆭𑆮𑆯𑆰𑆱𑆲𑆳𑆴𑆵𑆶𑆷𑆸𑆹𑆺𑆻𑆼𑆽𑆾𑆿𑇀𑇁𑇂𑇃𑇄𑇅𑇆𑇇𑇈𑇉𑇊𑇋𑇌𑇍𑇎𑇏𑇐𑇑𑇒𑇓𑇔𑇕𑇖𑇗𑇘𑇙𑇚𑇛𑇜𑇝𑇞𑇟𑇠𑇡𑇢𑇣𑇤𑇥𑇦𑇧𑇨𑇩𑇪𑇫𑇬𑇭𑇮𑇯𑇰𑇱𑇲𑇳𑇴𑇵𑇶𑇷𑇸𑇹𑇺𑇻𑇼𑇽𑇾𑇿𑈀𑈁𑈂𑈃𑈄𑈅𑈆𑈇𑈈𑈉𑈊𑈋𑈌𑈍𑈎𑈏𑈐𑈑𑈒𑈓𑈔𑈕𑈖𑈗𑈘𑈙𑈚𑈛𑈜𑈝𑈞𑈟𑈠𑈡𑈢𑈣𑈤𑈥𑈦𑈧𑈨𑈩𑈪𑈫𑈬𑈭𑈮𑈯𑈰𑈱𑈲𑈳𑈴𑈶𑈵𑈷𑈸𑈹𑈺𑈻𑈼𑈽𑈾𑈿𑉀𑉁𑉂𑉃𑉄𑉅𑉆𑉇𑉈𑉉𑉊𑉋𑉌𑉍𑉎𑉏𑉐𑉑𑉒𑉓𑉔𑉕𑉖𑉗𑉘𑉙𑉚𑉛𑉜𑉝𑉞𑉟𑉠𑉡𑉢𑉣𑉤𑉥𑉦𑉧𑉨𑉩𑉪𑉫𑉬𑉭𑉮𑉯𑉰𑉱𑉲𑉳𑉴𑉵𑉶𑉷𑉸𑉹𑉺𑉻𑉼𑉽𑉾𑉿𑊀𑊁𑊂𑊃𑊄𑊅𑊆𑊇𑊈𑊉𑊊𑊋𑊌𑊍𑊎𑊏𑊐𑊑𑊒𑊓𑊔𑊕𑊖𑊗𑊘𑊙𑊚𑊛𑊜𑊝𑊞𑊟𑊠𑊡𑊢𑊣𑊤𑊥𑊦𑊧𑊨𑊩𑊪𑊫𑊬𑊭𑊮𑊯𑊰𑊱𑊲𑊳𑊴𑊵𑊶𑊷𑊸𑊹𑊺𑊻𑊼𑊽𑊾𑊿𑋀𑋁𑋂𑋃𑋄𑋅𑋆𑋇𑋈𑋉𑋊𑋋𑋌𑋍𑋎𑋏𑋐𑋑𑋒𑋓𑋔𑋕𑋖𑋗𑋘𑋙𑋚𑋛𑋜𑋝𑋞𑋟𑋠𑋡𑋢𑋣𑋤𑋥𑋦𑋧𑋨𑋩𑋪𑋫𑋬𑋭𑋮𑋯𑋰𑋱𑋲𑋳𑋴𑋵𑋶𑋷𑋸𑋹𑋺𑋻𑋼𑋽𑋾𑋿𑌀𑌁𑌂𑌃𑌄𑌅𑌆𑌇𑌈𑌉𑌊𑌋𑌌𑌍𑌎𑌏𑌐𑌑𑌒𑌓𑌔𑌕𑌖𑌗𑌘𑌙𑌚𑌛𑌜𑌝𑌞𑌟𑌠𑌡𑌢𑌣𑌤𑌥𑌦𑌧𑌨𑌩𑌪𑌫𑌬𑌭𑌮𑌯𑌰𑌱𑌲𑌳𑌴𑌵𑌶𑌷𑌸𑌹𑌺𑌻𑌼𑌽𑌾𑌿𑍀𑍁𑍂𑍃𑍄𑍅𑍆𑍇𑍈𑍉𑍊𑍋𑍌𑍍𑍎𑍏𑍐𑍑𑍒𑍓𑍔𑍕𑍖𑍗𑍘𑍙𑍚𑍛𑍜𑍝𑍞𑍟𑍠𑍡𑍢𑍣𑍤𑍥𑍦𑍧𑍨𑍩𑍪𑍫𑍬𑍭𑍮𑍯𑍰𑍱𑍲𑍳𑍴𑍵𑍶𑍷𑍸𑍹𑍺𑍻𑍼𑍽𑍾𑍿𑎀𑎁𑎂𑎃𑎄𑎅𑎆𑎇𑎈𑎉𑎊𑎋𑎌𑎍𑎎𑎏𑎐𑎑𑎒𑎓𑎔𑎕𑎖𑎗𑎘𑎙𑎚𑎛𑎜𑎝𑎞𑎟𑎠𑎡𑎢𑎣𑎤𑎥𑎦𑎧𑎨𑎩𑎪𑎫𑎬𑎭𑎮𑎯𑎰𑎱𑎲𑎳𑎴𑎵𑎶𑎷𑎸𑎹𑎺𑎻𑎼𑎽𑎾𑎿𑏀𑏁𑏂𑏃𑏄𑏅𑏆𑏇𑏈𑏉𑏊𑏋𑏌𑏍𑏎𑏏𑏐𑏑𑏒𑏓𑏔𑏕𑏖𑏗𑏘𑏙𑏚𑏛𑏜𑏝𑏞𑏟𑏠𑏡𑏢𑏣𑏤𑏥𑏦𑏧𑏨𑏩𑏪𑏫𑏬𑏭𑏮𑏯𑏰𑏱𑏲𑏳𑏴𑏵𑏶𑏷𑏸𑏹𑏺𑏻𑏼𑏽𑏾𑏿𑐀𑐁𑐂𑐃𑐄𑐅𑐆𑐇𑐈𑐉𑐊𑐋𑐌𑐍𑐎𑐏𑐐𑐑𑐒𑐓𑐔𑐕𑐖𑐗𑐘𑐙𑐚𑐛𑐜𑐝𑐞𑐟𑐠𑐡𑐢𑐣𑐤𑐥𑐦𑐧𑐨𑐩𑐪𑐫𑐬𑐭𑐮𑐯𑐰𑐱𑐲𑐳𑐴𑐵𑐶𑐷𑐸𑐹𑐺𑐻𑐼𑐽𑐾𑐿𑑀𑑁𑑂𑑃𑑄𑑅𑑆𑑇𑑈𑑉𑑊𑑋𑑌𑑍𑑎𑑏𑑐𑑑𑑒𑑓𑑔𑑕𑑖𑑗𑑘𑑙𑑚𑑛𑑜𑑝𑑞𑑟𑑠𑑡𑑢𑑣𑑤𑑥𑑦𑑧𑑨𑑩𑑪𑑫𑑬𑑭𑑮𑑯𑑰𑑱𑑲𑑳𑑴𑑵𑑶𑑷𑑸𑑹𑑺𑑻𑑼𑑽𑑾𑑿𑒀𑒁𑒂𑒃𑒄𑒅𑒆𑒇𑒈𑒉𑒊𑒋𑒌𑒍𑒎𑒏𑒐𑒑𑒒𑒓𑒔𑒕𑒖𑒗𑒘𑒙𑒚𑒛𑒜𑒝𑒞𑒟𑒠𑒡𑒢𑒣𑒤𑒥𑒦𑒧𑒨𑒩𑒪𑒫𑒬𑒭𑒮𑒯𑒰𑒱𑒲𑒳𑒴𑒵𑒶𑒷𑒸𑒻𑒻𑒼𑒽𑒾𑒿𑓀𑓁𑓃𑓂𑓄𑓅𑓆𑓇𑓈𑓉𑓊𑓋𑓌𑓍𑓎𑓏𑓐𑓑𑓒𑓓𑓔𑓕𑓖𑓗𑓘𑓙𑓚𑓛𑓜𑓝𑓞𑓟𑓠𑓡𑓢𑓣𑓤𑓥𑓦𑓧𑓨𑓩𑓪𑓫𑓬𑓭𑓮𑓯𑓰𑓱𑓲𑓳𑓴𑓵𑓶𑓷𑓸𑓹𑓺𑓻𑓼𑓽𑓾𑓿𑔀𑔁𑔂𑔃𑔄𑔅𑔆𑔇𑔈𑔉𑔊𑔋𑔌𑔍𑔎𑔏𑔐𑔑𑔒𑔓𑔔𑔕𑔖𑔗𑔘𑔙𑔚𑔛𑔜𑔝𑔞𑔟𑔠𑔡𑔢𑔣𑔤𑔥𑔦𑔧𑔨𑔩𑔪𑔫𑔬𑔭𑔮𑔯𑔰𑔱𑔲𑔳𑔴𑔵𑔶𑔷𑔸𑔹𑔺𑔻𑔼𑔽𑔾𑔿𑕀𑕁𑕂𑕃𑕄𑕅𑕆𑕇𑕈𑕉𑕊𑕋𑕌𑕍𑕎𑕏𑕐𑕑𑕒𑕓𑕔𑕕𑕖𑕗𑕘𑕙𑕚𑕛𑕜𑕝𑕞𑕟𑕠𑕡𑕢𑕣𑕤𑕥𑕦𑕧𑕨𑕩𑕪𑕫𑕬𑕭𑕮𑕯𑕰𑕱𑕲𑕳𑕴𑕵𑕶𑕷𑕸𑕹𑕺𑕻𑕼𑕽𑕾𑕿𑖀𑖁𑖂𑖃𑖄𑖅𑖆𑖇𑖈𑖉𑖊𑖋𑖌𑖍𑖎𑖏𑖐𑖑𑖒𑖓𑖔𑖕𑖖𑖗𑖘𑖙𑖚𑖛𑖜𑖝𑖞𑖟𑖠𑖡𑖢𑖣𑖤𑖥𑖦𑖧𑖨𑖩𑖪𑖫𑖬𑖭𑖮𑖯𑖰𑖱𑖲𑖳𑖴𑖵𑖶𑖷𑖸𑖹𑖺𑖻𑖼𑖽𑖾𑗀𑖿𑗁𑗂𑗃𑗄𑗅𑗆𑗇𑗈𑗉𑗊𑗋𑗌𑗍𑗎𑗏𑗐𑗑𑗒𑗓𑗔𑗕𑗖𑗗𑗘𑗙𑗚𑗛𑗜𑗝𑗞𑗟𑗠𑗡𑗢𑗣𑗤𑗥𑗦𑗧𑗨𑗩𑗪𑗫𑗬𑗭𑗮𑗯𑗰𑗱𑗲𑗳𑗴𑗵𑗶𑗷𑗸𑗹𑗺𑗻𑗼𑗽𑗾𑗿𑘀𑘁𑘂𑘃𑘄𑘅𑘆𑘇𑘈𑘉𑘊𑘋𑘌𑘍𑘎𑘏𑘐𑘑𑘒𑘓𑘔𑘕𑘖𑘗𑘘𑘙𑘚𑘛𑘜𑘝𑘞𑘟𑘠𑘡𑘢𑘣𑘤𑘥𑘦𑘧𑘨𑘩𑘪𑘫𑘬𑘭𑘮𑘯𑘰𑘱𑘲𑘳𑘴𑘵𑘶𑘷𑘸𑘹𑘺𑘻𑘼𑘽𑘾𑘿𑙀𑙁𑙂𑙃𑙄𑙅𑙆𑙇𑙈𑙉𑙊𑙋𑙌𑙍𑙎𑙏𑙐𑙑𑙒𑙓𑙔𑙕𑙖𑙗𑙘𑙙𑙚𑙛𑙜𑙝𑙞𑙟𑙠𑙡𑙢𑙣𑙤𑙥𑙦𑙧𑙨𑙩𑙪𑙫𑙬𑙭𑙮𑙯𑙰𑙱𑙲𑙳𑙴𑙵𑙶𑙷𑙸𑙹𑙺𑙻𑙼𑙽𑙾𑙿𑚀𑚁𑚂𑚃𑚄𑚅𑚆𑚇𑚈𑚉𑚊𑚋𑚌𑚍𑚎𑚏𑚐𑚑𑚒𑚓𑚔𑚕𑚖𑚗𑚘𑚙𑚚𑚛𑚜𑚝𑚞𑚟𑚠𑚡𑚢𑚣𑚤𑚥𑚦𑚧𑚨𑚩𑚪𑚫𑚬𑚭𑚮𑚯𑚰𑚱𑚲𑚳𑚴𑚵𑚷𑚶𑚸𑚹𑚺𑚻𑚼𑚽𑚾𑚿𑛀𑛁𑛂𑛃𑛄𑛅𑛆𑛇𑛈𑛉𑛊𑛋𑛌𑛍𑛎𑛏𑛐𑛑𑛒𑛓𑛔𑛕𑛖𑛗𑛘𑛙𑛚𑛛𑛜𑛝𑛞𑛟𑛠𑛡𑛢𑛣𑛤𑛥𑛦𑛧𑛨𑛩𑛪𑛫𑛬𑛭𑛮𑛯𑛰𑛱𑛲𑛳𑛴𑛵𑛶𑛷𑛸𑛹𑛺𑛻𑛼𑛽𑛾𑛿𑜀𑜁𑜂𑜃𑜄𑜅𑜆𑜇𑜈𑜉𑜊𑜋𑜌𑜍𑜎𑜏𑜐𑜑𑜒𑜓𑜔𑜕𑜖𑜗𑜘𑜙𑜚𑜛𑜜𑜝𑜞𑜟𑜠𑜡𑜢𑜣𑜤𑜥𑜦𑜧𑜨𑜩𑜪𑜫𑜬𑜭𑜮𑜯𑜰𑜱𑜲𑜳𑜴𑜵𑜶𑜷𑜸𑜹𑜺𑜻𑜼𑜽𑜾𑜿𑝀𑝁𑝂𑝃𑝄𑝅𑝆𑝇𑝈𑝉𑝊𑝋𑝌𑝍𑝎𑝏𑝐𑝑𑝒𑝓𑝔𑝕𑝖𑝗𑝘𑝙𑝚𑝛𑝜𑝝𑝞𑝟𑝠𑝡𑝢𑝣𑝤𑝥𑝦𑝧𑝨𑝩𑝪𑝫𑝬𑝭𑝮𑝯𑝰𑝱𑝲𑝳𑝴𑝵𑝶𑝷𑝸𑝹𑝺𑝻𑝼𑝽𑝾𑝿𑞀𑞁𑞂𑞃𑞄𑞅𑞆𑞇𑞈𑞉𑞊𑞋𑞌𑞍𑞎𑞏𑞐𑞑𑞒𑞓𑞔𑞕𑞖𑞗𑞘𑞙𑞚𑞛𑞜𑞝𑞞𑞟𑞠𑞡𑞢𑞣𑞤𑞥𑞦𑞧𑞨𑞩𑞪𑞫𑞬𑞭𑞮𑞯𑞰𑞱𑞲𑞳𑞴𑞵𑞶𑞷𑞸𑞹𑞺𑞻𑞼𑞽𑞾𑞿𑟀𑟁𑟂𑟃𑟄𑟅𑟆𑟇𑟈𑟉𑟊𑟋𑟌𑟍𑟎𑟏𑟐𑟑𑟒𑟓𑟔𑟕𑟖𑟗𑟘𑟙𑟚𑟛𑟜𑟝𑟞𑟟𑟠𑟡𑟢𑟣𑟤𑟥𑟦𑟧𑟨𑟩𑟪𑟫𑟬𑟭𑟮𑟯𑟰𑟱𑟲𑟳𑟴𑟵𑟶𑟷𑟸𑟹𑟺𑟻𑟼𑟽𑟾𑟿𑠀𑠁𑠂𑠃𑠄𑠅𑠆𑠇𑠈𑠉𑠊𑠋𑠌𑠍𑠎𑠏𑠐𑠑𑠒𑠓𑠔𑠕𑠖𑠗𑠘𑠙𑠚𑠛𑠜𑠝𑠞𑠟𑠠𑠡𑠢𑠣𑠤𑠥𑠦𑠧𑠨𑠩𑠪𑠫𑠬𑠭𑠮𑠯𑠰𑠱𑠲𑠳𑠴𑠵𑠶𑠷𑠸𑠺𑠹𑠻𑠼𑠽𑠾𑠿𑡀𑡁𑡂𑡃𑡄𑡅𑡆𑡇𑡈𑡉𑡊𑡋𑡌𑡍𑡎𑡏𑡐𑡑𑡒𑡓𑡔𑡕𑡖𑡗𑡘𑡙𑡚𑡛𑡜𑡝𑡞𑡟𑡠𑡡𑡢𑡣𑡤𑡥𑡦𑡧𑡨𑡩𑡪𑡫𑡬𑡭𑡮𑡯𑡰𑡱𑡲𑡳𑡴𑡵𑡶𑡷𑡸𑡹𑡺𑡻𑡼𑡽𑡾𑡿𑢀𑢁𑢂𑢃𑢄𑢅𑢆𑢇𑢈𑢉𑢊𑢋𑢌𑢍𑢎𑢏𑢐𑢑𑢒𑢓𑢔𑢕𑢖𑢗𑢘𑢙𑢚𑢛𑢜𑢝𑢞𑢟𑢠𑢡𑢢𑢣𑢤𑢥𑢦𑢧𑢨𑢩𑢪𑢫𑢬𑢭𑢮𑢯𑢰𑢱𑢲𑢳𑢴𑢵𑢶𑢷𑢸𑢹𑢺𑢻𑢼𑢽𑢾𑢿𑣀𑣁𑣂𑣃𑣄𑣅𑣆𑣇𑣈𑣉𑣊𑣋𑣌𑣍𑣎𑣏𑣐𑣑𑣒𑣓𑣔𑣕𑣖𑣗𑣘𑣙𑣚𑣛𑣜𑣝𑣞𑣟𑣠𑣡𑣢𑣣𑣤𑣥𑣦𑣧𑣨𑣩𑣪𑣫𑣬𑣭𑣮𑣯𑣰𑣱𑣲𑣳𑣴𑣵𑣶𑣷𑣸𑣹𑣺𑣻𑣼𑣽𑣾𑣿𑤀𑤁𑤂𑤃𑤄𑤅𑤆𑤇𑤈𑤉𑤊𑤋𑤌𑤍𑤎𑤏𑤐𑤑𑤒𑤓𑤔𑤕𑤖𑤗𑤘𑤙𑤚𑤛𑤜𑤝𑤞𑤟𑤠𑤡𑤢𑤣𑤤𑤥𑤦𑤧𑤨𑤩𑤪𑤫𑤬𑤭𑤮𑤯𑤰𑤱𑤲𑤳𑤴𑤵𑤶𑤷𑤸𑤹𑤺𑤻𑤼𑤽𑤾𑤿𑥀𑥁𑥂𑥃𑥄𑥅𑥆𑥇𑥈𑥉𑥊𑥋𑥌𑥍𑥎𑥏𑥐𑥑𑥒𑥓𑥔𑥕𑥖𑥗𑥘𑥙𑥚𑥛𑥜𑥝𑥞𑥟𑥠𑥡𑥢𑥣𑥤𑥥𑥦𑥧𑥨𑥩𑥪𑥫𑥬𑥭𑥮𑥯𑥰𑥱𑥲𑥳𑥴𑥵𑥶𑥷𑥸𑥹𑥺𑥻𑥼𑥽𑥾𑥿𑦀𑦁𑦂𑦃𑦄𑦅𑦆𑦇𑦈𑦉𑦊𑦋𑦌𑦍𑦎𑦏𑦐𑦑𑦒𑦓𑦔𑦕𑦖𑦗𑦘𑦙𑦚𑦛𑦜𑦝𑦞𑦟𑦠𑦡𑦢𑦣𑦤𑦥𑦦𑦧𑦨𑦩𑦪𑦫𑦬𑦭𑦮𑦯𑦰𑦱𑦲𑦳𑦴𑦵𑦶𑦷𑦸𑦹𑦺𑦻𑦼𑦽𑦾𑦿𑧀𑧁𑧂𑧃𑧄𑧅𑧆𑧇𑧈𑧉𑧊𑧋𑧌𑧍𑧎𑧏𑧐𑧑𑧒𑧓𑧔𑧕𑧖𑧗𑧘𑧙𑧚𑧛𑧜𑧝𑧞𑧟𑧠𑧡𑧢𑧣𑧤𑧥𑧦𑧧𑧨𑧩𑧪𑧫𑧬𑧭𑧮𑧯𑧰𑧱𑧲𑧳𑧴𑧵𑧶𑧷𑧸𑧹𑧺𑧻𑧼𑧽𑧾𑧿𑨀𑨁𑨂𑨃𑨄𑨅𑨆𑨇𑨈𑨉𑨊𑨋𑨌𑨍𑨎𑨏𑨐𑨑𑨒𑨓𑨔𑨕𑨖𑨗𑨘𑨙𑨚𑨛𑨜𑨝𑨞𑨟𑨠𑨡𑨢𑨣𑨤𑨥𑨦𑨧𑨨𑨩𑨪𑨫𑨬𑨭𑨮𑨯𑨰𑨱𑨲𑨳𑨴𑨵𑨶𑨷𑨸𑨹𑨺𑨻𑨼𑨽𑨾𑨿𑩀𑩁𑩂𑩃𑩄𑩅𑩆𑩇𑩈𑩉𑩊𑩋𑩌𑩍𑩎𑩏𑩐𑩑𑩒𑩓𑩔𑩕𑩖𑩗𑩘𑩙𑩚𑩛𑩜𑩝𑩞𑩟𑩠𑩡𑩢𑩣𑩤𑩥𑩦𑩧𑩨𑩩𑩪𑩫𑩬𑩭𑩮𑩯𑩰𑩱𑩲𑩳𑩴𑩵𑩶𑩷𑩸𑩹𑩺𑩻𑩼𑩽𑩾𑩿𑪀𑪁𑪂𑪃𑪄𑪅𑪆𑪇𑪈𑪉𑪊𑪋𑪌𑪍𑪎𑪏𑪐𑪑𑪒𑪓𑪔𑪕𑪖𑪗𑪘𑪙𑪚𑪛𑪜𑪝𑪞𑪟𑪠𑪡𑪢𑪣𑪤𑪥𑪦𑪧𑪨𑪩𑪪𑪫𑪬𑪭𑪮𑪯𑪰𑪱𑪲𑪳𑪴𑪵𑪶𑪷𑪸𑪹𑪺𑪻𑪼𑪽𑪾𑪿𑫀𑫁𑫂𑫃𑫄𑫅𑫆𑫇𑫈𑫉𑫊𑫋𑫌𑫍𑫎𑫏𑫐𑫑𑫒𑫓𑫔𑫕𑫖𑫗𑫘𑫙𑫚𑫛𑫜𑫝𑫞𑫟𑫠𑫡𑫢𑫣𑫤𑫥𑫦𑫧𑫨𑫩𑫪𑫫𑫬𑫭𑫮𑫯𑫰𑫱𑫲𑫳𑫴𑫵𑫶𑫷𑫸𑫹𑫺𑫻𑫼𑫽𑫾𑫿𑬀𑬁𑬂𑬃𑬄𑬅𑬆𑬇𑬈𑬉𑬊𑬋𑬌𑬍𑬎𑬏𑬐𑬑𑬒𑬓𑬔𑬕𑬖𑬗𑬘𑬙𑬚𑬛𑬜𑬝𑬞𑬟𑬠𑬡𑬢𑬣𑬤𑬥𑬦𑬧𑬨𑬩𑬪𑬫𑬬𑬭𑬮𑬯𑬰𑬱𑬲𑬳𑬴𑬵𑬶𑬷𑬸𑬹𑬺𑬻𑬼𑬽𑬾𑬿𑭀𑭁𑭂𑭃𑭄𑭅𑭆𑭇𑭈𑭉𑭊𑭋𑭌𑭍𑭎𑭏𑭐𑭑𑭒𑭓𑭔𑭕𑭖𑭗𑭘𑭙𑭚𑭛𑭜𑭝𑭞𑭟𑭠𑭡𑭢𑭣𑭤𑭥𑭦𑭧𑭨𑭩𑭪𑭫𑭬𑭭𑭮𑭯𑭰𑭱𑭲𑭳𑭴𑭵𑭶𑭷𑭸𑭹𑭺𑭻𑭼𑭽𑭾𑭿𑮀𑮁𑮂𑮃𑮄𑮅𑮆𑮇𑮈𑮉𑮊𑮋𑮌𑮍𑮎𑮏𑮐𑮑𑮒𑮓𑮔𑮕𑮖𑮗𑮘𑮙𑮚𑮛𑮜𑮝𑮞𑮟𑮠𑮡𑮢𑮣𑮤𑮥𑮦𑮧𑮨𑮩𑮪𑮫𑮬𑮭𑮮𑮯𑮰𑮱𑮲𑮳𑮴𑮵𑮶𑮷𑮸𑮹𑮺𑮻𑮼𑮽𑮾𑮿𑯀𑯁𑯂𑯃𑯄𑯅𑯆𑯇𑯈𑯉𑯊𑯋𑯌𑯍𑯎𑯏𑯐𑯑𑯒𑯓𑯔𑯕𑯖𑯗𑯘𑯙𑯚𑯛𑯜𑯝𑯞𑯟𑯠𑯡𑯢𑯣𑯤𑯥𑯦𑯧𑯨𑯩𑯪𑯫𑯬𑯭𑯮𑯯𑯰𑯱
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Descriptive Catalogue of Ancient Gold Coins found at Bhursur.—(Continued.)

No	Weight and quality.	Obverse.	Description.	Reverse.	Remarks.
SRI PRAKASA?					
1	Grains 146.	Raja on horse-back turned to left, Peacock Standard, over horse's head, the letter ण beneath the horse; inscription illegible.	Female seated on Conch shell throne, holding a noose in right hand; emblem  ; legend not distinct; apparently  "Sri Prakasa?"		The gold of these two coins is richer than the others, but the workmanship is inferior and denotes a more modern date than the other coins. (Plate xii. fig. 9.)
2	Grains 145.	Duplicate of the above, legend less distinct.		Duplicate of the above, legend less distinct.	
A 1	126	Duplicate of No. 1, A, for Chandra Gupta, inscription not clear.		Reverse as in parallel specimen inferred to.	This spare set is that alluded to as desirable for our College Museum.
A 2	130	Ditto No. 2, A, ditto ditto.		Ditto ditto	
A 3	126	Ditto No. 3, A, ditto ditto.		Ditto ditto	
B 1	114	Ditto No. 1, B, or Samudra Gupta ditto.		Ditto ditto	
C 1	125	Ditto No. 5, C, or Kumara Gupta ditto.		Ditto ditto	
D 1	125	Ditto No. 1, D, or Skanda Gupta ditto but doubtful.		Ditto ditto	
D 2	125	Ditto No. 1, D, ditto ditto.		Ditto ditto	
D 3	130	Ditto Nos. 1 & 3, D, ditto legend clear.		Ditto ditto	

(Signed)

M. KITTOE, Major, Archaeological Enquirer.

Note on three ancient Coins found at Mohammadpur, in the Jessore district. By BĀBU RĀJENDRALĀL MITTRA. (*Communicated by CECIL BEADON, ESQ.*)

In the preceding plate (Pl. xii. figs. 10, 11, 12) I have given figures of three coins found along with several others near the Arunkhālī river at Mohammadpur, in the district of Jessore, and presented to the Asiatic Society by Mr. F. L. Beaufort. It appears they had been buried in an earthen pot which was accidentally discovered by a man digging a well.* The coins, which were found along with those now under notice, are all of the Gupta kings of Kanouj, and comprise specimens of the silver coinage of Chandra Gupta, Kumāra Gupta and Skanda Gupta. The metal of these coins is very impure, and were the fact of their coins being frequently discovered in Bengal a sufficient evidence to conclude that the Gupta kings of Kanouj once held the sovereignty of this country, it would strengthen an opinion started by James Prinsep that the provincial currency of the Guptas was of an inferior metal to what was used in their metropolitan towns.

No. 1. (Fig. 10) is a gold coin, weighing 85 grains. On the obverse it has a female with a bow, a standard, a deer looking towards the left, and a border round the margin, with the monogram श्री, *Sri* in the Gupta character. *Reverse*, a winged victory to the right, with an undeciphered Arian ? inscription in the margin.

The reverse is very unlike that of the Gupta coins, but the monogram induces me to assign it to *Sri Gupta*, the founder of the Gupta dynasty of Kanouj, who is the only king of that line whose coins have not yet been discovered, and this conjecture is somewhat strengthened by the fact that it is only in the coinage of the Guptas that we observe the practice of using initial letters instead of, or conjointly with, the names of the kings in full, and it might, not very unreasonably, be supposed that the founder of the dynasty was the first who introduced this practice as well as the figure of victory, which last, his successors changed into a *Lakshmi*.

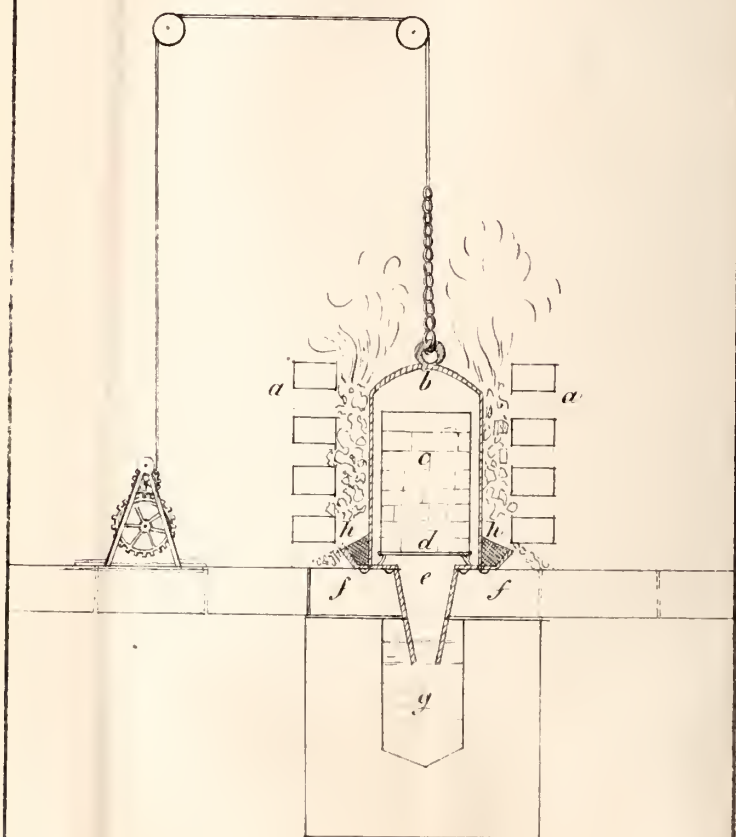
* Unfortunately Mr. B. has been unsuccessful in preserving any of the fragments of this pot.—*Eds.*

No. 2. (Fig. 11) appears likewise to be a Gupta coin, and is evidently an unique specimen of its kind. On the obverse it has the rájá seated on a stool with a nimbus round his head, and attended by two females standing by his side; above his left hand is an indistinct monogram. On the reverse is a standing female figure holding branches of lotus in her hands; before her is a peacock, and to the left the letters श्रीनरेन्द्र (गुप्त?) *Sri Narendra (Gupta ?)*, in the Gupta character. It is however doubtful if this be a coin of the monarch of that name, whose coins have an equestrian obverse.

No. 3. (Fig. 12.) This coin has not yet been noticed by any Indian numismatist. On the obverse it has a human figure seated on a bull couchant, with the letters जय (Jaya) at the bottom, and श्रीम in the margin to the left, in the Gupta character. On the reverse the legend is the same as in the Gupta coins, but rudely executed. The inscription is not perfect, the letters श्रीमता (Sri mata) are all that are distinct: Metal very impure silver.

A coin somewhat analogous to this, but with the bull rampant, was discovered by Mr. Tregear at Jaunpur whilst digging on the site of an old fort called Jayachánd's Koth (*Journal As. Soc.* Vol. iii. p. 411, plate xiii. fig. 12), and a brass seal with a bull couchant done in very much the same style as the coin, with the name of Jayachánd in full was found at Sháhpur Oonde, and presented to the Asiatic Society in June, 1850, by Mr. Earle, from a careful comparison of which, bearing in mind that the bull is the peculiar cognizance of the Rájputs, and that Rájá Jaychandra of Captain Fell's Benares copper plates (*Asiatic Researches* XV. p. 446,) was a scion of that royal stock, I am led to assign this coin to that prince. According to the plates Jayachánd flourished in A. C. 1177, an era fully borne out by the modern and peculiarly Indian appearance of the coin.

Fig. 1.



Mexican Cappellina.

Description of a cheap and simple apparatus for distilling off the Mercury from an Amalgam of Gold or Silver—By HENRY PID-DINGTON, Curator Museum of Economic Geology.

When explaining to the Society's meeting of the 4th of February, the beautiful Spanish amalgamation process for the extraction of Silver from poor ores, I placed on the table my own two-anna imitation of the Spanish "*Cappellina*," or bell, for distilling *per decensum*, used in the great mining works of Mexico and Peru, Major Baker remarked to me that the knowledge of this apparatus would be a fortune to the poor gold-washers of Lahore and the North West Provinces, who now lose all the mercury which they use to amalgamate their gold with after washing; and this like all petty industrial losses may amount to a much larger sum than is suspected, and being an expense added to the subsistence of the gold-washer before he obtains his profit, must often prevent poor washings from being worked. To diffuse knowledge of this kind is one of the objects of our Journal, and especially so of the Museum, and hence the present paper.*

I will first describe the Spanish CAPPELLINA which is a large bell of Copper, gun-metal, or Iron, beneath which the amalgam is placed, and of which a section is shewn in Fig. I. Plate, as follows:—

- a. A circular wall, with openings, to support the fuel.
- b. The *Cappellina* or bell with a pulley to hoist and lower it; about 3 feet high and 18 inches in diameter.
- c. The column of amalgam which is squeezed into wedge-shaped blocks, placed so as to leave also a small channel down the centre; they are piled up upon—

* See also Journal Vol. IV. page 279 (for 1835) Capt. Cautley on the Gold-washings of Nahun, and Vol. XVI. p. 266 Capt. Abbott, on the Gold-washings of the Beyass. At the gold-washings of the Brazils, a singular method is adopted by the poor washers to save at least a portion of their mercury. The pellet of amalgam is placed in a metal dish and covered with a few green leaves, and then being placed over a charcoal fire it is heated, and stirred by an iron rod; when the leaves are dry, they are replaced by fresh ones, and from the leaves used in the process, a considerable quantity of the mercury is said to be recovered!

d. An iron dish to receive them.

e. A copper dish with high borders and a funnel, upon which the bell fits as close down as possible, the funnel dips into the reservoir of water.

f. Stone to support e, and in which are cut channels to allow the water to circulate round the copper.

g. Reservoir of masonry filled with water, into which the mercury distils.

h. Luting round the foot of the bell to prevent the escape of the mercury.

The operation of this is easily seen from the sketch: The fire is kindled on the upper part first, and as it burns downwards the pile of amalgam heats, and all the vaporized mercury is driven downwards through the funnel into the water where it condenses. The blocks of silver are then called *Plata Piña*, or Pine-apple silver, in commerce.

My own contrivance for effecting this distillation with common bazar materials, to be obtained every where, is shewn at Fig. II. and III. ; the first being the separate pieces of the apparatus, and the second a section of it when in action.

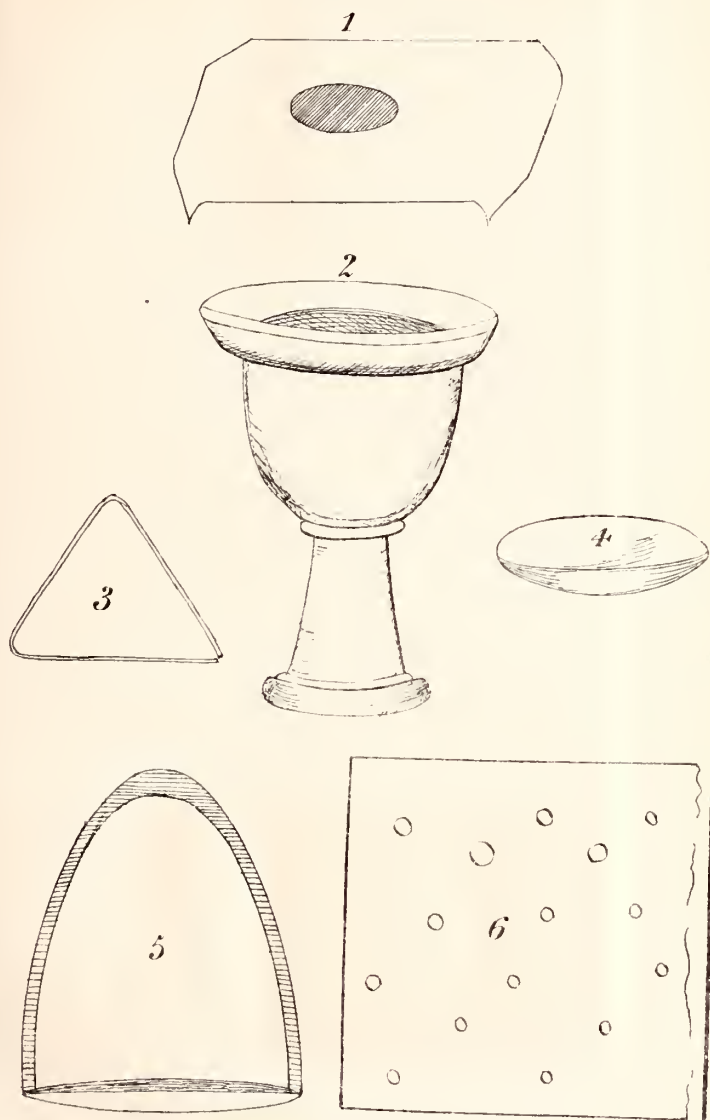
No. 1 May be a flat tile, or a plate of thick tin, or thin sheet iron, 7 or 8 inches long, by 5 inches broad with the four corners turned down and a hole in the centre to admit the stem and bowl of—

No. 2 Which is the common black varnished *Kolkee*, or tobacco-holder, of the Native hookah or Goorgoory, and is about 3 inches broad at the top.

No. 3 Is a little triangle of stout iron wire which lies easily in the bottom of the *kolkee*; three or four small lumps of clay may be put in the place of this to support—

No. 4 Which is a small circular bit of sheet iron, beaten hollow to form a dish. A small circular dish cut out of any broken globular-shaped vessel, as a common *goglet* or *garrah*, will answer, but the iron is better, because a little of the gold might sink into the earthenware dish; it will be noticed that when No. 4 is in its place there is an interval between its edge and that of the bowl of the *kolkee*, say of three or four-teuths of an inch. It is by this interval that the mercurial vapour escapes downwards, as shewn by the arrows in fig. III.

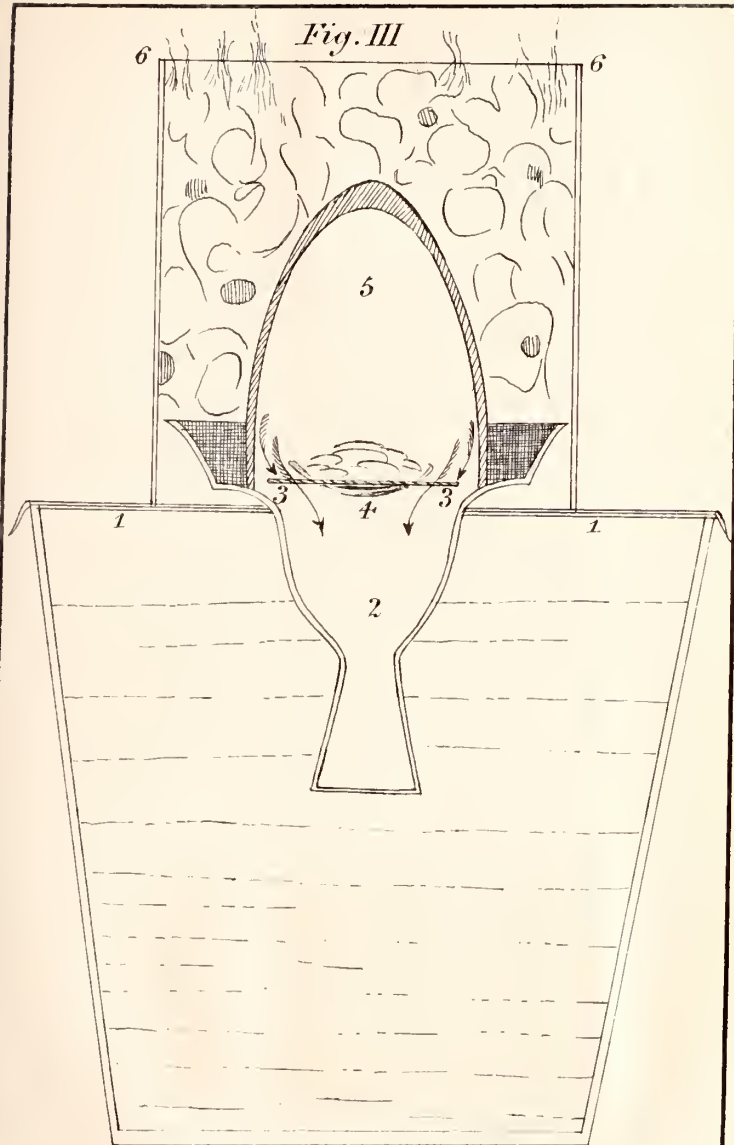
Fig. II.



Parts of the Apparatus.

H.P.

Fig. III



Apparatus at work.

No. 5 Is a section of a common pipe-clay crucible which may be imitated in earthen-ware by any potter. It is turned mouth downwards, and should sit upon the inner rim or shoulder of the *kolkee*. It is about 2 inches in diameter at the mouth.

No. 6 Is a piece of old tin plate 9 or 10 inches long by 5 inches high, with holes in it, bent into a cylinder to contain the *guls* or charcoal used as fuel.

To use this apparatus, place the plate No. 1 over any kind of earthen vase, European or Native, such as a jug or pickle-jar or even a glass tumbler or finger glass as in Fig. III.

Put the pellet of amalgam into the dish No. 4, and place this upon No. 3, or upon the earthen supports for it, inside the *kolkee*, and then set the *kolkee* with its stem through the hole in No. 1, dipping about half or three quarters of an inch into the water with which the vase or glass should be filled.

Have some good fat clay : That which the natives mix up with cowdung to line their *chulās* with is very proper for the purpose ; and fill in the space *h* (of Fig. I.) squeezing it well in, so as to have no cracks ; this is called "luting." Fill the whole space as shewn by the shade in Fig. III. with the luting clay.

Put the tin Cylinder No. 6 over the apparatus, observing that it should just fit loosely over the edge of the *kolkee*, so as to allow of a little air rising up, but not of the fuel falling down below the *kolkee*, for our object is to drive all the mercury downwards by heat from above.

Fill the cylinder with small charcoal or broken *gools* ; and set fire to it *at the top*, so as to let it burn slowly downwards which it should do out of any draft. If the quantity of amalgam is large, lift off the cylinder when the first lot of fuel has burnt, and the whole is cold, and clear away the ashes ; and then fill it again with fuel and let it burn out as before. It will then be found on opening the apparatus, that all the mercury has distilled into the water, and that the gold remains in the iron dish, but it should be heated again in an open fire, or melted down, to drive off a little mercury, which always hangs about it as well as about silver when worked by amalgamation, even in the great Mexican establishments.

I have had occasion to show this apparatus to a gentleman who was proceeding to Australia, and I may as well add here that I explained to him that small pellets of amalgam, say as large as peas or buck-shot may be introduced into a bent gun-barrel and care being taken by turning the barrel over to send them down to the breech, this may be placed with the bend resting on a little mud wall, and the breech part nearly horizontal. If a little fire is now made round the breech the mercury will quickly distil over through the muzzle end, which should be kept cool by a wet rag and have its end dipping into any vessel of water. The pellets of gold will remain separate unless the fire is so hot as to melt them.

The apparatus above described may be imitated by any contrivance, such as the lid of an iron saucepan with the socket part of its handle, or a small pistol barrel, driven through the middle of it for a pipe, and an old pomatum pot or gallipot or china-cup coated with a little stiff clay and dung, beat up together, or a small tin funnel with the tinning scraped off and the pipe stopped up with clay would form a makeshift for the crucible or bell;* care being always taken to close any cracks with the luting. In England I have no doubt that a capital little cast and sheet iron apparatus might be manufactured for a few shillings. No other precaution is necessary in using any of these contrivances than not to breathe any of the vapour and not to meddle with the apparatus till nearly cold, as while hot there is always some vapour ready to escape and in the great Mexican mining establishment, the workmen have been killed by the bursting of the *Campanilla*, when of a faulty casting, from breathing the mercurial fumes. A severe salivation would follow the incautious breathing of a very small quantity, and thus care should be taken to avoid it.

* A common house or sheep bell would be in effect a small "*Campanilla*" and this might be obtainable at the diggings.



Diary of a Journey through Sikim to the Frontiers of Thibet.—By
Dr. A. CAMPBELL, Superintendent of Darjeeling—with a Map.
(Communicated by SIR JAMES COLVILLE, KT.)

In 1848, I made a journey into Sikim ; a Journal of my trip was published in the Journal of the Asiatic Society for May 1849. The Map which accompanied that paper, although it contained a good deal of the Geography of Sikim previously unknown, was altogether inaccurate in the Northern districts, which I had not then visited. I now give the completion of a tour of Sikim with Geographical notices of the proximate parts of Thibet, and hope that it may be acceptable.

The journey here detailed was performed in September, October, and November, 1849, in company with Dr. J. D. Hooker, R. N., who was then on a Botanical Mission from the British Government to the East Indies. Dr. Hooker having obtained the permission of the Governor-General, Lord Dalhousie, to travel in Sikim, and the Rájá of that country having agreed to facilitate his journey to the passes which divide his territory from Thibet, left Darjeeling early in the month of May in the expectation of reaching the Northern Frontier of Sikim by the end of the same month, and returning before the setting in of the heavy rains in July. He had, however, not gone more than a few marches when the most vexatious obstructions were put in the way of his advance by the local officers along the route, encouraged thereto by the Singtam Soobah, the officer appointed by the Raja's Dewan to attend upon him to facilitate his journey and his researches !* His plant collectors were threatened and misdirected ; the people along his route were prohibited from furnishing him with supplies ; attempts were made to convince him that he had reached the Thibet frontier soon after he passed Choongtam when he was 30 miles from it, and he was repeatedly told that an attack by Thibetan Troops and a tramp to Pekin would be the result of his further progress. In short, every effort that bullying and falsehood could devise was made to drive him from his purpose, but ineffectually ; for although he and his people were reduced to living on wild spinage and arum roots, the Sikimites

* This man was expressly selected by the Dewan for the purpose of defeating the object in view, and to the end was his zealous co-adjutor in preventing access to the Raja and the adoption of more friendly conduct.

could not starve them, and he had determined that starvation alone should force him to a retrograde movement. He, therefore, held on till he ascertained from me where the Northern boundary of Sikim really lay, of which I had no idea when he started, and in virtue of the Rájá's permission to visit it he determined to reach it. With indomitable perseverance supported by the courage and patient endurance of his followers, he succeeded in outstarving his tormentors, for the Soobah, who had endured similar self-imposed privations, and had eaten wild spinage, arum roots, and other garbage until he nearly died of the colic, knocked under, and at last admitted that the Kangra Lama Pass was on the frontier, that he had told lies innumerable on the subject, but would now take Dr. Hooker and his men onwards in the hope of their speedy return to Darjeeling. This he did, but not until the end of July, and from that time Dr. Hooker continued to explore and botanise in the Lachen and Lachoong vallies, and up to the passes, throughout the remainder of the rains, at the conclusion of which I joined him. I am not aware that any other European has ever travelled, and lived in a small tent in the Himalaya all through the monsoon, and it is certainly a very severe trial. He had his reward however in great collections of new plants made where no European had ever trod before, in making scientific observations of the confines of Thibet at very high elevations in an unusual season of the year, and in adding much to our Geographical knowledge in that unknown quarter. It was the necessity for ascertaining the real cause of the obstructions he had met with from the Rájá's Officers that led to my journey in that direction, and indeed I was little loath to undertake it when I read Hooker's accounts of the new regions he had visited, and of his views into Thibet from the passes both of which he had resolved to revisit after the cessation of the rains for botanical and other purposes. Having obtained the permission of the President of the Council of India, laid in, and suitably packed up, two months' supplies for my own party and Dr. Hooker's, I started at the worst season of the year for travelling in Sikim,—September 23rd,—to join him at Choongtam which is at the junction of the Lachen and Lachoong rivers, and with the hope of being allowed to travel through Thibet from the Kangra Lama Pass to the Doukia Pass, and thence down the Lachong valley to the starting point, Choongtam. We were very fortunate in effecting these objects in the

most amicable manner. A few days' residence in Thibet and the exploration of the Lachen and Lachoong vallies of Sikim amply repaid me for the difficulty and danger of the journey which was considerable, and my companion was equally satisfied with his success in the cause of science. From Choongtam we retraced our steps to Singtam, whence we proceeded to Tumloong, the residence of the Rájá, in the hope of procuring explanation from him in person. From Tumloong we were anxious to go by the Chola Pass into the valley of Choombi, which is Thibetan territory, and to return from that valley by the Yakla Pass to Darjeeling. We crossed the Chola Pass on the 7th of November, but the Thibetan officers here were not so accommodating as those we met at Kangra Lama, and we returned on the same day to Chumneko in Sikim, where the Singtam Soobah and other adherents of the Dewan brought matters to a crisis by personal violence on both of us, their force however being mainly expended on me. The accompanying map is a reduced one from Dr. Hooker's, and exhibits our whole route. All the elevations and Meteorological observations are his also. The climates of Lachen and Lachoong much drier than that of Darjeeling, and the noble scenery in and around those Northern vallies of a totally different character to the forests of the Southerly portions of Sikim, give them additional interest as promising places of resort to invalids from Bengal. Their proximity to Thibet with which country a route for unembarrassed commerce from Darjeeling and Bengal would be a great advantage, also gives them a more general importance. Of Thibet I can in no way say that it is a land of any promise. As far as I could see, it was mountainous and rugged, bare of vegetation and barren. The province of Dingcham, which we visited has probably a mean elevation of 16,000 feet. Bhamtoo is 18,000, the valley of the Geree to the North is, say 15,000, it is utterly bare of trees, and quite barren. Dingcham extends along the Northern face of Himalaya from the Tingu Maidon on the West to Tawang, on the East an extent of 360 miles. The intense cold of the climate in the winter does not admit of its being permanently habitable by man or beast.* It is occupied, however, by Nomadic Bhotias from May

* On the 17th of Oct. the Ther. fell to 5° of Faht. It was fortunately for our party quite calm. When it blows hard in Thibet in the cold weather it is almost certain death to be as little protected as we were.

till October, when it is very pleasant and the grazing is good. The habitable and culturable portions of Eastern Thibet are all to the North of Dingham, and are confined to the narrow vallies of the streams and rivers ; those portions are probably nowhere of greater elevation than 14,000 feet, and require irrigation from the rivers to produce crops. I infer 14,000 feet to be the upper limit of the culturable elevation in Eastern Thibet from the barrenness of Dingham at elevations of 16,000 feet and under, and because there is a considerable descent from that elevation to the nearest cultivation to the North. I am afraid, however, to touch on these difficult and important points of enquiry with the little personal observation I have had in Thibet. At the time of my journey and since, I have collected information on various subjects connected with that country, which I may arrange at a future time, and I have a very curious Map of the country compiled by Natives who had travelled as Lamas and Merchants over the greater part of it. With this explanatory introduction I must leave the Diary to speak for itself, adding that the result of my local enquiries fully confirmed my previous suspicions, that all the obstructions to Dr. Hooker were instigated, and directed by the Rájá's Dewau, in opposition to the Raja's wishes. The same evil influence was set on foot to prevent my having access to the Rájá to procure explanation, and ended in violence to Dr. Hooker and myself with imprisonment and disgraceful usage. As on my former journey in 1848, I was everywhere received and treated with the utmost kindness and respect by all classes of the Sikim people, and even in our confinement I received numerous proofs of friendly feeling from old acquaintances who thereby risked the grave displeasure of the Dewan, who was dreaded and detested by all the Rájá's loyal subjects, and they are nine hundred and ninety-nine out of every thousand in Sikim.

DIARY.

Namgialachi, September 25th, 1849.

Having despatched my baggage and six weeks' supply of rice, &c. for my people to this place, 24 miles, 3 days in advance, I quitted Darjeeling this morning at $\frac{1}{2}$ past 5 A. M. It was a lovely morning. Ther. 62° in the house. As I reached the "Dell Corner," the view was as beautiful as it was novel to me although I have lived 10 years

within a few hundred yards of the spot. The sun, not yet above the horizon, tinged with deepest crimson long masses of clouds which hung over the lower hills of Bootan. The great spur of the Sinchal facing the Dell Corner to the South East, and lying between it and the emblazoned clouds, was cloudless itself, and of a sapphire-blue. In the valley of the Rungro reaching from the Saddle to the Great Rungeet, and just below me, lay a six-mile bed of the laziest and whitest clouds I ever saw. To the East the Peak of Tendong Arrarat stood out so boldly and looked so near, that in the coming daylight I did not at once recognise it; and to complete the scene Kunchinginga just then brushed off the clouds from its base to its summits, and appeared in all the majesty of its coldest morning white. I stood in great admiration until the sun arose, and then the whole scene changed with magical rapidity. The crimson clouds dissolved at once, and gave place to the clearest and brightest sky. The Bootan Hills came out in peaks, and ridges, and all else was restored to its usual aspect.

At $\frac{1}{2}$ past 8, having ridden all the way, I crossed the Great Rungeet by the Cane bridge. Thermometer in shade 85° , the heat stifling, the river excessively turbid and swollen,—I here mounted a fresh horse which had been ferried over the day before, and recommenced my journey. At 300 feet above the river I came on an open expanse of long yellow grass, in which a dwarf palm (*Cycas*) and a beautiful pale blue Iris abounded. This vegetation continued for at least a mile, the contrast of colours was very beautiful, the whole forming a variegated carpet under large trees of *Saul* and *Pinus longifolia*. Carried the *Sauls* and *Pines* with me to the ridge of *Meksurrso*, where they at once ceased, and *Oaks* began. Probable elevation 3,000 feet. This ascent was an hour's work. Thermometer at $\frac{1}{2}$ past 9, 76° ; took a light breakfast of cold tea with bread and butter, and moved on riding slowly till half past 11, when in a narrow part of the road a mile below *Silukfoke* the poney's hind foot slipped, I felt he was giving way, and immediately slid out of the Saddle against the inner bank which I had just touched when the poor beast capsized backwards, and then rolled like a round black ball with the speed of light down the precipice, the open umbrella which I had in my hand following about 100 yards in his wake.

The trees and underwood soon shut him from my sight, but for a minute and more I heard the horrid crashing sound as he bounded along to his untimely end. The men who were behind me soon came up and slid down in search of him. It was half an hour ere they returned. When they reached him he was stone dead, lying against a large rock the blood flowing from his nostrils, and his back broken ;—poor Bhotia ! Nine years long you were my steady and willing steed !

Walked the last 3 miles in a hot sun but reached this at 2 P. M. Found a good house prepared for me by the Cheeboo Lama, Vakeel of the Sikim Raja who had preceded me, and met with due attention from the Raja's people. Thermometer 72° at 2 P. M., 68° at 6 P. M.

The forest around this place is now in full and varied foliage ; very many trees are in flower, and the orange-blossomed *Erisina* makes a great shew. Just around my door are Oaks, Chesnuts in flower and fruiting, Wormwood, *Hypericum*, *Osbeckia*, Holly, *Magnolia* in flower, besides many handsome plants unknown to me by name.

Close below me there are fine crops of Tugmaar rice in full ear, but not ripe, and Murnea, Kodso, and Indian corn nearly ripe. The first crop of rice, the Zorug variety which is grown lower down, has been cut and stored.

Temi, 26th September.

Left Namgialachi at 7 A. M. and arrived here at 2 P. M. by which I reckon the distance to be 14 miles. Road very bad, and in many places ankle-deep in sticky clay, or black peaty earth. Tried a chair, which is a *tolerable* substitute for a good poney, and no more.

The Raja's people here are civil ; a good house has been put at my disposal ; small supplies and other assistance have been offered and accepted. The house is a Bhotia one ; a notice of its style will suffice once for all on this journey. It consists of one large room 50 feet by 24, the floor raised 5 feet from the ground, well planked and supported on massive squared posts and beams. The walls are of close bamboo matting, the ceiling, of close laid straight bamboos an inch in diameter, looks very neat, it is laid on scanted cross beams 8 feet apart. The roof of bamboo thatch projects 7 feet, giving a verandah all round.

The Teesta at "Look Sampoo," is in sight from Temi the water of a very dirty greyish-green colour like soap suds. Badong, on the

opposite side, and the hills of Bootan lower down are bright with green woods, and ripening crops of rice, Indian corn and millet. This is a much better season than the cold weather, when I last travelled here in 1848, for lively and varied scenery. The Tondong Forest, stretching in one unbroken mass from its summit, an elevation of about 8000 feet above the river, to the Teesta, is a noble expanse of varied and majestic vegetation. Temi is embosomed in it, and stands about half way between the river and the summit.

Thermometer at 8 P. M. in the house 72° ; elevation say 4000 feet.

Neh-Mendong, 27th.

Started from Temi at 6 A. M. and arrived here at 2 P. M. Distance most probably 15 miles. Heat intense and overpowering; in the Teesta valley through which the route runs, it was quite stifling from 9 to 11, and again from 1 to 2; yet there was a breeze occasionally blowing from the south, but it gave no relief. The eight Lepchas who carried my chair, in which I rode but seldom, were fairly overcome and had to bring up at the Rungoon river to refresh. The vegetation is superb all the way, and its shade frequently protected me from the scorching heat. This is the season to see these jungles in perfection although it is somewhat perilous. It is only in malarious places, and at times when malaria is rife that the mixed tropical and alpine character of the Sikim forests can be seen in all its glory. Oaks and the Pandanus palm, Chesnuts and the Oopi palm, flourish side by side along Nainfok and Bram. Scitamineous plants of various kinds, and wormwood, each of 12 feet high and more, form a common under-wood in the clearer spaces, and all the other plants are of gigantic growth. There is a species of Chesnut hereabout which I never saw before. It has a broad and round leaf with wide spreading graceful branches. The clusters of unripe and light green fruit add to its beauty. It is a very handsome tree.*

The "Pooah Hemp," *Böhmeria nivea*, abounds along the road from the Rungpo to this place. The average elevation of the zone in which it flourishes is about 600 feet above the river. On the Rungeet I found the Pooah at 200 feet above the guard-house, i. e. at an ele-

* The other two varieties of Chesnut which I know, are 1st, the large-timbered Chesnut at Darjeeling with small thick hard leaves, and 2nd, one with a long sharp-pointed leaf now in flower at Namchi.

vation of 1800 feet. It has a most extensive range, and the supply might be rendered unlimited, if there was a demand for it in India or in Europe. Sir William Hooker has recently informed me that he has caused a trial of its qualities to be made in London, Dr. Hooker having sent him some of the prepared Hemp from Darjeeling. Sir William instances the successful cultivation of the Indian Jute as an incentive to further trials of the Pooah.

The Jute was not many years ago unknown in England. Now £300,000 worth of it are imported annually !*

The Peepsas are very indefatigable here, and very numerous. I am encamped at the measuring stone (see Journal of 1848) ; there is no water within a mile, but my ground is, I hope, above the level of malaria.

The road to-day swarmed with leeches, the people's feet streaming with blood, and it was so slippery in the long descent from Temi that I could not walk with shoes on, and I was obliged to move between two Lepcha supporters, whose bare feet give them a great advantage. The airs, and underwood teem with insect life ; innumerable butterflies of brilliant hues sport in the sunshine ; and thousands of other less attractive creatures are on the wing. The night is as busy a time as the day with the insect world. The roof of my tent is literally covered with the most beautiful little moths, and the air resounds with the discord proceeding from innumerable throats.

Thermometer at 8 P. M. 76°.

Padom, below Kedong, 28th.

Left Neh at 6 A. M. and arrived here at 3 P. M. I was anxious to reach Kedong as it is certainly beyond the limit of malaria, but I could not accomplish it ; I hope we are safe here ; it is, I reckon 5 or 600 feet above the Teesta and *said* to be healthy.

Thermometer at 5 P. M. 75°. I am pitched near a small stream of water among bamboos, high reed grass and Acacias ; there are some Oaks, however, lower down, and at the cane bridge over the Rumphup there are three large and handsome " Boreh " Palms. Pandani, Peepsas, musquitoes, and a black venomous ant abound here. My feet are swollen and sore from leech and peepsa bites ; my face and hands equally so

* The Pooah has been very favourably reported on for cordage, by Captain Thomson of Calcutta, see Proc. Agricultural Society for 1848.

from the musquitoes and peepsas. This is a trying and fatiguing march at this season. The heat in the valley of the Teesta is quite overpowering and I never before experienced so much inconvenience from it. My head all day felt full to bursting, and my face and eyes were burning: but the skin was open at every pore, and I could walk along briskly. The Lepchas, who carried my empty chair, felt it even more than I did; they were quite exhausted, and rolled about as they walked along panting for breath. The tropical character of the route, as we approached Bamsang, was very striking. All the vegetation luxuriant, and every plant gigantic. The hum of insects was so loud as to rival the roaring of the river; both united were quite deafening.

The insect and vegetable kingdoms alone possess this region. Neither bird nor beast was to be seen. Thermometer at the Bansong ghat in a house at 1 P. M. 87°, a fine breeze blowing; but this does not relieve the feeling of oppressive and choking heat, which I have experienced in the vallies since I started.

There are many beautiful plants in flower just now between Nch and Bansong, which I never saw before. I found a "Sweet Pea," a climber, colour pale Rose, and two other Peas, one purple, a shrub, the size of the Spanish broom, the other blue, a small shrub with broad rounded leaves, also a lilac, terrestrial orchis 10 feet high called "Broong," a white one, and a blue one, each 6 feet high. There is also a handsome fig tree, with clusters of yellow fruit like Loquats, called "Suntote;" it is not edible however.

I heard from the Raja to-day in reply to my announced intention, of proceeding to his Northern frontier at Kongra Lama. He authorises Aden Cheebo Lama to accompany me as I desired, and sends orders to his officers to clear the roads, and otherwise to assist me. The officers along the line I have come, paid no attention to the Cheebo's previous requisition. The following is the administrative division of the country between Darjeeling and the Thibet frontier at Kongra Lama and Doukia.

1st. From the Rungeet to the Teesta, by the line of Atooknot and Temi, the country is under the Kaji who lives at Burmeok, the Meboo at Namgialachi and the Mahapun Kada, who resides near Temi.

2nd. From Temi to Neh is under the Lassoo Kaji, who resides above Namfok.

3rd. From Neh to Goreh is under the Goreh Soobah, who resides at Goreh.

4th. From Goreh to Choongtam, the country is under the Singtam Soobah, who resides at Singtam.

The Choongtam Lama, and the Phipuns of the Lachen and Lachoong vallies, have respectively the local charge of their districts under the Singtam Soobah's surveillance, but the peculiar position of the two latter officers, the Phipuns, serving as they do the authorities of adjacent Thibet, as well as the Sikim Raja, will be better explained afterwards.

The Lachen man manages the country extending from Choongtam up to Kongra Lama; the Lachoong one, from the same point up to the Doukia Pass. Choongtam is at the junction of the Lachen and Lachoong rivers. Their united streams form the Teesta.

The Gereh district is at present assigned to the heir-apparent of the Rájá, the Singtam one to the Mohá Ráni.

We met many men to-day, travelling to the South; they had been 10 days on the road from Choombi. They were laden with salt. We passed others with loads of chopped Munjeet, going all the way to Phari.* How pitiful to see the trade of a people, in such bulky articles, carried on in this way, when a road for Ponies and Bullocks would make it so much more easy and profitable.

The road from Bamsong to Lachen and Lachoong† is so extremely bad, that it is not used in traffic with Thibet till the one by Chola to Choombi is snowed up. Lachen and Lachoong are nearer Bamsong than Choombi; and no snowy range intervenes, but there is no food to be had in this direction. From Lachen and Lachoong northwards the roads are good for cattle into Thibet, but a cattle road from the heart of Sikim to these places is required, to establish a proper trade with Thibet. The British Government could do this; the Sikim Raja never can have the means to do so.

Talking of the wretched system of trade in this direction, and of the people who dabbled in it, the Cheebo Lama said to me the other day, "The Bhotias are, however, very good Pedlars, (Biparies,) they eat so much less than Lepchas." "How do you mean," I asked.

* A frontier mart of Thibet.

† The principal places in the vallies of these names.

“They eat enormously at the expense of other people, but on their own charges they will fast to faintness rather than spend a penny, and it is the same with drink ; a Bhotia, although so fond of it will rarely buy it ; a Lepcha if he wants it will freely give any price for it.” So much for characteristic differences in these tribes.

Goreh 29th. Started from Padom at 6 A. M., reached Kedong where I encamped in 1848, at 9, and this place at $\frac{1}{2}$ past 12. A hard march it is ; the road is so slippery in many places, that I found it impossible to walk alone with shoes on, and had recourse to the support of a barefooted Lepcha. No use to-day of the chair, which we had to take to pieces in order to carry it along the cliffs of Sungdum.* Near Goreh, to the West of the “Rungki” stream, there has been a great land slip by which the road has been quite obliterated for $\frac{1}{4}$ of a mile, and it was a difficult matter to get along the slip, as it is almost perpendicularly scarped on this side the Rungki ; however, the road is worse even than over the land slip, or along the cliffs of Sungdum ; at two places there is nothing to walk on but the stem of a tree with notches cut in it, standing erect against the face of the rocks ; and above one of them was a dripping rock which rendered the notches as slippery as ice, and wetted us thoroughly as we climbed them.

Last night it rained heavily ; the tent of Nipal blanketing in which I slept, leaked like a fine sieve.

The rain came down in large drops, but was spurted through the tent roof like the spray of a water fall. I got one umbrella over my head in bed, and another over as many of my things as it would cover, and got up this morning pretty dry, but little refreshed. We marched this morning in heavy rain, which lasted 4 hours.

There is a fine crop of Sunkoo Rice in ear on the shoulder of Sungdum, and near the Rhododendron Arboreum I noticed at this place in December last ;—elevation say 4,500 feet. Rice at Goreh cut sometime ago ;—elevation probably 1,000 feet less.

The whole country to the North and South is in heavy clouds. Nothing to be seen.

The Cheeboo Lama was my companion all the morning, and his sensible and fluent talk beguiled the hours. He is a student of “Mendooling,” a famous School or College in Thibet, and situated

* See Journal of 1848.

two horse journies east of Lassa. Here he informed me he had studied the Bhuddist religion for two years, but in saying so modestly added, "It takes 3 years of Mendooling to make a Pucka Lama," of his alma mater, he gave the following particulars, "There are upwards of 100 Lamas engaged in clerical duties, and in teaching Religion. Literature and the Sciences are deeply studied and extensively taught, and all the arts of life are also taught there, carpentry, stone masonry, painting, shoemaking, tailoring, &c. Pupils come from all parts of, what we call Eastern Thibet, the province of U, to learn there;* one professor is always appointed to the principal College at Lassa from Mendooling, and when I was there he had the sons of all the grandees of the capital, as his pupils." I expect to hear much more of Mendooling before we have finished our travels together, for the Raja writes that my little friend is to take care of me to the Northwards.

I have got into a good house for the night, 4 P. M.; heavy and continued rain. Thermometer 71°, elevation say 3,500 feet.

30th. Incessant pouring rain all night. The house leaked freely, but I got a dry spot for my bed. The rain continues, and we halt for the day. No wonder that Bengal is under water just now, every depression on the mountain sides has a snow-white foaming torrent in it, rushing furiously to the river, and they are countless in number. The noise they make, added to that of the Teesta itself which is just below me, say 2,000 feet, is like the coming of a furious storm. I felt very aguish last night, and dreaded jungle fever; but the symptoms are gone to-day. Lepchas own this house, my portion of it is curtained off, but there is only one door for us all. They have indeed some dirty habits. The grandmama of two urchins was sitting in the door way, as the place for strongest light when I got up from breakfast. The brats were busily hunting lice in her back clothes and eating them, she herself being similarly employed with those in front!

There is a little tobacco grown here, but no care is taken of it. The leaves are small, it is allowed to go to seed, and is said to be of very inferior quality.

* All East of the Kamboola range is "U," all West of it "Chang" or tsang.

The wormwood* on the fallow ground here is 12 feet high ; it grows up to, and all round the house and on both sides of all the pathways. I find, however, that the people have good reason for allowing this plant to monopolise all their fallow clearances. Its decayed leaves are considered to form the very best manure, it has a profuse foliage which falls and rots readily during the rains, and the plant itself is cut down after it seeds in October, and is also allowed to rot on the land.

As I did not in December last travel further than this place on the route to Thibet, I shall henceforward note more particularly the state of the road, the places along it, &c. ; the foregoing memoranda being purposely of a more general nature, or designed only to shew the differences observable in the country during the rains, and in the dry season.

October 1st. Tugvia, east bank of the Teesta. Started at 6 A. M. and reached this at 2 P. M. very much fatigued ; got into a good house just as it began to rain heavily. Thermometer at 6 P. M. 72°. Probable elevation above the Teesta 1,200 feet. There is a little garden attached to this house, the first I have seen in Sikim ; it contains plantains, sugar-cane, capsicums, turnips, two kinds of creeping beans and marigolds.

The villagers have been turned out to clear the road all the way from Bansong, and the little Lama with the Raja's orders to that effect under a Red Seal in his pocket, is exceedingly attentive and most useful.

The road descends steeply from the Goreh-mendong in a north-east direction to the Jett, a rapid torrent which pours over a precepice of whitish clay slate, and rushes to the Teesta ; we crossed it over bamboos laid from rock to rock, and afterwards continued to descend in the same direction as before to the Num-moo, a larger feeder of the Teesta than the last, which we crossed at half past 8 ; a mile more along a flat terrace parallel to the Teesta brought us to the Bhalak ghaut of the Teesta, where at 9 o'clock we crossed to the East Bank by a rickety cane bridge suspended 30 feet above the water. The river is here confined in a narrow channel of rock and pours down like a sluice of dirty soap suds, so turbid is it from land slips in its upper course.

* *Artemisia.*

It does not appear to be more than half the size it is at Bansong : hence the Ryote which is the only affluent of note between this and Bansong must be a large one ; it drains the Chola portion of the eastern snowy range, and is formed by three streams, the Dik, Ryote, and Runjung. Thermometer at Bhalak in the shade 78°. Ascended steeply from the river to about 300 feet and came along the Phajigam* village and terrace thence to Akurthung, which we reached at noon, a flat terrace about a mile long, whence we descended by a precipitous and dangerous path to the Rungrung, running west, and crossed it a few yards above its junction with the Teesta.

This crossing is without doubt the worst place I have ever been over. From the top of an immense round rock up to which you climb on hands and knees, three bamboos are laid across the torrent at an acute ascending angle to the opposite precipice. This attained, at the imminent risk of falling into the torrent, you get to zigzag bamboos which are hung by slips of dry creepers against the face of the rock for you to walk on ; then there is a net work of knotted creepers spread over the face of the precipice by which you get to the top of a ledge or the first story of the ascent. From this there is an erect pole with notches cut in it, then a bamboo ladder, next another notched pole of 22 steps, which stands in a gully of the rock and over which a streamlet trickles, and lastly you have to crawl up the head of this dripping gully to reach the top. The whole ascent arranged in this singularly ingenious, but very dangerous manner, must be above 200 feet. It needs a steady head, and firm tread to manage it. The smallest slip would be fatal. The rivetting of the attention had, I found, quite exhausted me when I reached the top. We all got up in safety, an hour's march from this brought us to Tugvia. Our general direction has been north, road distance, say 15 miles.

On the west bank of the Teesta opposite this, and north of Goreh is the Mani, a feeder of the Teesta, then "Sidoor" a Lepcha village, next "Munkiang," and north of that the run, another western feeder of the Teesta which rises from the Kim mountain.

The mountains hereabouts are very precipitous and composed of clay schist ; land-slips are common. There is a recent one above

* Phajigam, or "Sandy plain," there is whitish clay slate debris doing duty for sand, but *the plain* is not perceptible.

“Sidoor” which is frightful to look at, even from this side of the river ; a few days ago a hill side came down bodily into the Teesta two marches above this, and two years ago a whole village Kemam was destroyed in this way, and all the people killed ; it occurred at night in a deluge of rain and in a storm.

I heard from Hooker yesterday ; he was on the 24th still at the Donkia pass, and had that day ascended the mountain close to it to 20,000 feet, and discovered another Lake the 4th of the Lachoon ones.

My Lepcha hostess of last night afforded me another trait of domestic habits. This morning, I was dressing by candlelight in my end of the house, while she was at her toilet at the other. Having got one of the boys to bring her a cup full of water in the tea-ladle, she commenced her ablutions. Wetting her hands she each time held them over the fire in the smoke, and then rubbed them over her face and arms. Then dried herself with the lousy cludder of yesterday ; rubbed her teeth twice with her fingers, and thus ended, “my lady’s toilet.”

Singtam, October 2nd.

Heavy rain all night, which ceased at daylight, but came on again at 6 o’clock.

Started at 7 in lighter rain, and reached this at noon. Thermometer at 8 P. M. in house 68° ; an easy march in the dry season as to distance, and no great ascents or descents, but just now it is very different ; general direction north-east, being the course of the Teesta. Crossed the Rung-lok, a small stream, a short distance from Tugvia, and then ascended to the Rungoon Spur along the west brow of which the road runs for two miles through an undulating and cleared country, bearing excellent crops of rice and murwa, now ripening. There is also a good deal of grass, and the cows are remarkably fine and numerous. It is well peopled, principally by Lepchas who have good houses, and is in the jurisdiction of the Singtam Soobah, who lives a little farther on at “Rufam,” from which we ascended steeply to “Shem,” a spur from the Enden mountain, and thence descended to Singtam. The road through the cultivation of Rungoon is ankle-deep in mud, and on the steep descent to this place it was impossible to move alone with

shoes on. With a stick in each hand and a Lepcha holding on by each arm, slipping was not to be avoided.

The opposite bank of the Teesta is extraordinarily precipitous, and in many places the scarpd rocks for 1000 feet descend almost perpendicularly to the river. The course of the Teesta here is east and west, which it takes from the Saklang ghaut south of this, and at the foot of the Shem spur. It was by the Saklang ghaut that Hooker crossed in May last, having kept the west bank of the river that far from Goreh opposite Singtam. Bearing north is the Sufo mountain, lower down Likla, and west of that is "Sakiong."

The Kuloo mountain above last night's encampment is a favourite site for devotees, who retire for a time into the jungles to do penance and devote themselves to abstraction and religious contemplation. This feature of Hinduism is in considerable repute among the Buddhists in Sikim, females as well as males of the religious order adopting it. One of the present Raja's daughters is a Nun-Auni—and has in this way segregated herself from the world for 11 years. While thus engaged the individuals are objects of veneration, and perform religious exercises and incantations for all applicants.

There is a Goomba at Rungoon, the head Lama of which is a Lepcha. It commands a noble view of the eastern flank and spurs of Kunchinjinga, but we were enveloped in thick clouds, and I saw nothing as we passed.

I found an Indian-rubber tree, called Yok-koong, close to the last ground at Tugvia. Caoutchouc is made in Sikim, but the only use it is applied to is for lining baskets to hold fermented murwa for making beer.

There is a crop grown here which I never met with before; it is called "Kundep," and is now in ear; it is grown like rice, and is something like it, but taller and stronger in the stem, and the grains are separate, on long pedicles, and twice the size of those of rice. It is said to be nutritious, and to taste like Indian-corn. When eaten it is boiled like rice and is previously husked in the same way. Three climbing edible plants are cultivated hereabouts, the Botanical names of which I do not know.

1st.—"Kucho-pote," a round brown thing like a potatoe in form and substance; it is formed on the stem of the plant which is a slender

climber, and is supported by long hop poles. It is eaten, boiled or roasted, and is a sort of above-ground yam.

2nd.—“Kusok,” a black round substance like the above in structure, but the size of a prune; it is similarly grown on hop poles, and eaten roasted or boiled. It is a handsome plant with large digitate leaves.

3rd.—“Tukoombi,” another climber. The edible part being black currant-like berries, which are roasted or boiled when eaten.

I have got into a Lama's house here and am dry and comfortable; but these people do not make the most of their houses which are really very good. They are all raised 4 to 8 feet from the ground, which at first sight would promise exemption from damp; the flooring, however, is of loose boards, with intervals between them, and as pigs, fowls, goats and calves live below you, and the ground is a perfect puddle, you have damp and noisome air incessantly about you. The cows too take shelter under the eaves and hang about the houses, so that dirt and slush surround you. This is the state of things during the rainy season, and different indeed it is from that which you find both at the house, and on the road during the cold weather, to which alone the English notices of the Himalaya generally refer.

Miangh, October 3rd.

Heavy rain all night. We started at 6 A. M. in a drizzle, which soon became a right down pour, and this continued until 11 when it brightened, and we reached this place at noon. The peculiarities of travelling in the rains were displayed in all their force and glory. Our route lay along the north-west side of Rungeelah, and above the Teesta south bank, with occasional descents to feeders of the river which we crossed, and ascents to their corresponding spurs, the general line being about the elevation of Singtam, until we made a long descent to this place which is about 500 feet above the river. The Koormi, Bungkiong, and Bungchi are the principal feeders on the route, they came dashing down their smooth narrow beds of quartz rock, occasionally impeded by immense round masses of rock through which they rush thick with mud and clay-slate debris, the foaming flood being the colour of dirty soap-suds. The crossings are very difficult;—the deepest places are passed over on rickety sticks or bamboos, the remainder by crawling on hauds and knees from rock to rock and by wandering.

The road was very muddy all the way, and we had to toil through peaty slush in many places more than ankle-high. The leeches were most troublesome, half a dozen at a time fastening through the stockings, and it often sickened me to see the bloody water bubbling through my shoe laces as I toiled along. Peepsas and midges were all the time busy at my hands and face.

The course of the Teesta here is nearly east and west, and its bed is now gorge-like the mountains on the north side being almost perpendicular, and on this side but little less abrupt.

The Ramam is a large feeder from the north, and just below its junction with the Teesta there is a cane suspension bridge; above it is the great landslip already noted and which recently carried a whole village into the river.

We met some excellent cows to-day, and I would have bought some, but they could never get to Darjeeling, and until a road is made in this direction the cattle of Rungoon must continue to die in the land of their birth, for no cows could travel where we came along to-day. Another day and no views of Kunchinjunga; it cannot be helped, and I hope for better skies as we return. I had however a glimpse of Lemteng across the Teesta, it is a well cultivated mountain-side above the Rungjung river. The road to the Taloong Pass goes through it. This pass leads to Shanok in Thibet, a district of Digarchi. There is a little trade across it, but the difficulties of effecting a passage are very great, and the route is but rarely attempted.

Chakoong, October 4th.

Heavy rain again all last night, but it ceased by daylight, and at 6 o'clock we started; passed "Namgah" at 8, and reached this at noon. Thermometer at 8 P. M. 70°. Miangh is a place to be remembered albeit *not* memorable; my tent was soaking wet, there was no village near, and I therefore had a hut built of long grass and plantain leaves; it defended me pretty well from the rain although it fell in torrents; but I was a prey in the day to Peepsas and all night to fleas, bugs, musquitos and another creature more venomous than all of them, a sort of gnat, the bites of which are greatly inflamed and intolerably itchy. I am speckled purple all over from the industry of these creatures, and my feet and ankles are swollen and very painful from yesterday's leech bites. These animals, the leeches, I can, I

hope, defy for the future. The little Lama, seeing the plight I was in this morning, recommended me to roll moistened tobacco leaves round my feet. I did so, and with the most perfect success ; I had not a leech bite all day, and when I took off my shoes a dozen were dead on the stockings under the tobacco leaves, not having done me any damage.

Miangh is a flattish terrace overgrown with a rank jungle of reed grass, wormwood, &c. ; the soil, a rich black peaty loam saturated with moisture and covered here and there by small stagnant pools of water.

Although the place has apparently all the requisites of virulent malaria, it is said, and I hope truly said, to be quite healthy. Indeed the whole valley of the Teesta above Bansong is considered by all the people in this direction to be free from malaria ; if it be so, the fact must, I think, be attributed entirely to the precepitous character of the mountains bounding the valley, which rise almost perpendicularly from the bed of the river to the height of 2000 feet.

They are however generally clothed with a dense forest ; and although the action of the sun on decaying vegetable matter may doubtless be much limited by the near approach of both banks, the decay of vegetable matter must nevertheless be very great, and on the terraces such as that of Miangh the putrid smell covered by it was most offensive. If it shall really turn out that malaria is not rife and powerful here, an opinion which I have long held, that an expanded horizontal surface in the mountain valleys is essential to the generation of this mysterious and pestilent agency, will be confirmed. Rank vegetation, a retentive soil, and profuse moisture alone, will not produce it if it be not generated here. Our present encampment is a flat terrace similar to Miangh not 100 feet above the river ; it is composed of sandy soil, and is occupied by fine alders and young birches ; it is also considered quite healthy. Landslips appear in many places, and on both sides of the river. This is quite characteristic of the Teesta above Goreh. Last evening at 5 o'clock I was startled by what I believed to be a great explosion in the sky, followed by what seemed to be an increasing peal of thunder. It suddenly ceased, and not being followed by any thing similar, and there being no lightning afterwards, I was puzzled to account for the phenomenon. This morning, however, some of my people who were encamped a little lower down the valley, asked me if

I had heard the crash at that hour, and said it was caused by a great landslip on the opposite bank of the river.

To-day I have heard about a dozen of these crashies, and they are followed by a rumbling noise as the masses of rock are carried down by the current, which is a boiling flood throwing waves up in the narrow parts of the channel 20 feet high.

After leaving Miangh we descended to the feeder of that name, and crossed it by a rickety suspension bridge, the side rails of which, as well as the footing, were covered with a thick slime, and exceedingly slippery. It was a foaming cataract where we crossed. The bridge hung 40 feet above it, and many of the coolies clung to it in evident alarm, and were very dizzy. At 9 o'clock we reached the Rune, and crossed it also by a suspension bridge hung just below a fall of about 50 feet, and about 100 yards from its junction with the Teesta. It was a continuous bed of roaring foam for about 1000 feet above the bridge, and below it all the way to the river. I stopped midway to gaze at the extraordinary sight, and got soaking wet with the spray from the cataract. It was a noble sight ; the rainy season only can give such sights in Sikim, where waterfalls and cataracts are very rare. Between the Rune and this place, Chakoong, three hour's walk, our road lay close to the Teesta, varying from 200 feet above it down to its level, and in that distance we had to cross 8 or 10 landslips of varying extent, some quite recent and extending from 1000 feet above us down into the river. They were all sufficiently difficult to cross, and none of them well free from danger ; one in particular was very frightful. We crossed it 200 feet above the river ; it was quite a new slip ; foot traces had scarcely been formed along it to guide us ; it was nearly perpendicular above us for 800 feet, equally so below us ; the crest of the mountain whence it had separated above, was of rock, and projecting over it so far that it looked as if it was overhanging us, our footing was of loose rubble, and over lumps of rock, and water courses just cut in it came running down its sides.

While crossing this unsettled slip the Lama who was leading, and just ahead of me looked up to the top, and instantly quickened his pace ; my eyes followed his to the overhanging summit, and my pace was quickened up to his, but not a word was spoken by any one, nor did any one delay a moment. When safe across I said, "That is a

bad bit of ground, my friend." He replied, "It is pretty safe to-day, there has been plenty of rain to take it down; but three days of sunshine will bring it all crumbling down into the Teesta!"

I believed him, and I am satisfied that to travel on the upper Teesta in the rains needs as steady a head and as much care as any mountain journeys whatever. I can now very adequately appreciate the intrepidity and zeal which has carried Hooker through five months of it without a companion.

Choongtam, October 5th.

Started at 6 A. M. a beautiful morning, no clouds, and a fresh cold weather feel in the air: a lofty Snow Peak of Kunchinjinga in sight to the south-west, and Peaks partially covered with snow are in sight up the Teesta valley to the east and north. Crossed the Cha-koong, a feeder of the Teesta, two miles from camp by a suspension bridge, and at 8 o'clock crossed the Ryote by a similar bridge which hung 60 feet above the torrent. It was a bed of foam for 1000 feet above the bridge, and similarly furious in its course to the Teesta, which it joined 300 yards below. There is a cane-bridge across the Teesta, just above the junction of the Ryote. The road to-day has been exceedingly difficult and very dangerous. We had to cross more than a dozen landslips, some of them quite recent, and of very infirm footing, the river tearing past at the bottom of them with such speed and violence that nothing could resist its force. The noises from masses of rock rolling down with the current were incessant, and resembled distant volleys of musketry.

On nearing Chongtam the bed of the Teesta is considerably wider than it is lower down, a bank of loose mud and rubble is thrown up on the south side of it by the Ryote feeder, which dams up the river into a quiet lake-like expansion of half a mile long. The water was clear and green, and fringed with fine trees to the very edge. The effect was very striking and pleasing, being greatly heightened by the Chongtam hill rising at the back ground to 5000 feet, the upper portion of it 2000 feet from the summit being clothed with verdant grass. This is the first grassy land I have seen in Sikim; it is a pleasing fore-taste of what I expect beyond on the plateau of Thibet. The Lachoong river coming down from the north-east is crossed by a cane-bridge close to Chongtam, at which there is a large flat terrace, 200 feet

above the river, covered with an irrigated rice crop. Above this flat is the Goomba and Lama's house, a fine airy situation, elevation 5000 feet. There was a delightful breeze from the south all day.*

About half way from Chakoong I met Hooker, who came down so far to welcome me. He is looking remarkably healthy and is quite robust, wears a large beard, and is sadly sun-burnt since his trip to the Passes.

Latong, October 6th.

Talked all night with Hooker about his visits to the Passes. Started at 8 A. M. and reached this at 3 P. M., our road all the way in the valley of the Lachen in a north-west direction, and on the left bank. We crossed the river below Chongtam by a suspension cane-bridge. At noon crossed the Urkang. Half way is Denga, a flat terrace, about a mile long and half a mile broad, and there is a succession of similar terraces all the way to Latoong, which is much the largest of the whole, and is perhaps a mile broad at the place we encamped.

These terraces or flats are covered with an upper stratum of black peaty soil, and their general formation is sandy gravel, and roundish masses of rock down to the river bed. The average elevation of them above the river is under 100 feet. There has been a marked change in the vegetation on this march. The most prominent plants not seen below Chongtam and seen here, are the Poplar, Willow, Crab-apple, and Anemone. We saw some of Hooker's newly discovered Rhododendrons, and the Dalhousie, growing not as an Epiphytic plant, but out of the ground;—elevation of Latong 7000 feet.

At the elevation of 2000 feet above the river, the mountains on both sides are clad with pines. Ther. at 6 P. M. 55°. The road all the way from Chongtam is most difficult; along the terraces it is ankle-deep in mud and black soil, and in the other parts it is across landslips, or violent torrents, or over immense rocks in the river's bed. Leeches very numerous. Insects infested the tent all night.

(To be continued.)

* Choongtam, and the whole country south of the Kungra Lama and Doukia passes, was occupied by the Thibetians for many years, and at length restored to Sikim by negotiation.

Literary Intelligence.

Mowlawy Ahmad 'Alyy has published a lithographed edition of the text of the *Mishkát* with few and short, but very useful marginal notes, derived chiefly from the *Mirqát*. The *Mishkát* with 'Abd al-Haqq Dihlawy's Persian translation and commentary has been published at Calcutta (in type) in four folio volumes, in 1259, and subsequently with an Urdu translation and commentary (lithographed) at Dilly equally in four volumes. Mowlawy Ahmad Aly has also made a new edition of the *Tafsyr Jalályn*, this edition is more correct but not nearly so clear as the Calcutta edition, 1257 folio. The same Mowlawy, who surpasses all his contemporaries in erudition, has completed two thirds of his edition of the traditions of Bokháry, mention of which has once been made Vol. XX. p. 282. He has favoured me with the portion which has been printed. It is a splendid folio 17 inches high, it has 710 pages, and contains twenty chapters: ten chapters remain to be printed. Wherever the vowels throw light on the sense they have been carefully fixed, and the text is farther illustrated by admirable glosses on the margin and between the lines, taken from the *Fatḥ al-Báry* and other celebrated commentaries.

Mr. Lees of the 42 N. I. is editing under the auspices of the Society in the *Bibliotheca Indica* the conquests of Syria by the Pseudo-Wáqidy, with an English translation. He has two MSS. one belongs to Colonel Rawlinson and the other to a Mowlawy at Cawnpore, both are of considerable antiquity and written with care. In addition to these two MSS. a more authentic book on the conquests of Syria has been discovered. It is one of the most ancient Arabic manuscripts that I have seen and was probably written in the fifth century of the Hijrah. It is unfortunately imperfect and it has therefore been impossible to ascertain who the author is. The *Asnád* are not those of the *Tabaqát al-Wáqidy* and but few of the men mentioned in the *Asnád* can be found in the books on the *Asmá Alrijál*. They were probably heretics and are therefore not mentioned in the biographical works of the orthodox Musalmans. This leads me to suppose that the author is Madá'yiny (died in A. H. 225.) This MS. will probably be printed as it is, as an appendix of Mr. Lees' edition of the Pseudo-Wáqidy.

Another work of very great importance the publication of which in the *Bibliotheca India* is in contemplation is the *كشاف اصطلاحات الفنون* by Mowlawy Mohammad A'lá b. Shaykh 'Alyy of Saháranpúr who

died about sixty years ago. He spent nearly the whole of his life in the compilation of this work. It contains the technical terms of all the sciences cultivated by the Musalmans, and what gives it a particularly high value is that the definitions and explanations are taken verbatim from the most authentic text books and commentaries of the respective sciences, there are therefore collected in it the opinions of the most distinguished authors. Of those sciences which are still cultivated, and well known, the author contents himself by explaining the technical terms but in those sciences of which books are rare he enters deeper into the subject and gives in fact a compendium of the leading points. The book is very much like our Encyclopedias. In extent it is equal to, or larger than the Qámús, and if its publication should be decided upon it will be desirable to print it in the same form as the Calcutta edition of the Qámús. At present two MS. copies are at the disposal of the Society and it is very likely that we shall be able to obtain one of the three copies which the author has written with his own hand.

Capt. F. Hayes intends to publish in the Bibliotheca Indica the Tazkirah of Persian poets by Abú Tálíb Khán which was compiled in A. H. 1206 and of which a very learned notice from the pen of Mr. Bland has appeared in the Journal of the Royal As. Soc. Lon. IX. p. 153. Capt. Hayes is Assistant Resident at Lucknow, and he will find in that city a very carefully written autograph copy which is preserved in the Farah-baksh library.

Among the new books which have been lately lithographed at Lucknow are the following :—

سرور سلطانى. A translation into Urdu of Shamsheer Khán's prose version of the Sháhnámah, by Myrzá Rajab Alyy Sorúr. The book is in rhymed prose and in an idiom which is peculiar to the literati of Lucknow, it is neither Persian nor Hindustání but in the whole approaches nearer to the former than the latter. It is dedicated to the illustrious Ruler of Oudh and to one of his Dóms. The print is remarkably clear, it has 312 pp. 8vo. مولد شریف منظوم. The birth of Mohammad in Urdu verses composed in A. H. 1251 by Gholám 'Abbás Khán and lithographed in 1267 12mo. 48 pp.

توضیح و تلبیح (4to. 423 pp. lithographed in 1267) On the author and contents refer to Hájí Khalyfah No. 3674.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL,
FOR MAY, 1852.

The usual monthly General Meeting of the Society was held on the 5th instant, at half-past 8 P. M.

SIR JAMES COLVILE, KT., *President*, in the Chair.

The proceedings of the last meeting were read and confirmed.

The following presents made to the Society were exhibited.

1st. A palm leaf MS. of Kattyáyana's Páli grammar in the Burmese character found in a monastery at Rangoon. Presented by Dr. Fayer.

2nd. The Memoirs of the Academy of Sciences and Arts of Lyon, for 1848—50. Presented by the Academy of Sciences and Arts of Lyon.

3rd. The Transactions of the Royal Bavarian Academy of Sciences. Presented by Mons. W. Thiersch, President of the Academy.

4th. The latest publications of the Royal University of Christiania, as per Library report. Presented by the Secretary of the University.

Lieut. E. Burgess, N. I., was named for ballot at the next meeting, —proposed by Capt. Thuillier and seconded by Mr. Grote.

Read Letters—

1st. From Dr. W. B. O'Shaughnessy, tendering his resignation of the office of Vice-President of the Society, on account of his departure to England on public duty.

From Professor Fleischer, Secretary of the German Oriental Society, acknowledging the receipt of the Bibliotheca Indica, Nos. 15 to 33.

From the President of the Royal Bavarian Academy of Sciences, acknowledging the receipt of the Journal, Vol. I to IV. and the Calcutta Journal of Natural History, Nos. 1 to 16.

From the Secretary of the Royal Institution, Albemarle Street, acknowledging the receipt of the Journal, Nos. 218, 221 to 224.

From Dr. Lamb, Senior Member of the Medical Board, enclosing an abstract of Registers of Temperature and Fall of Rain kept by medical officers in different parts of India. Ordered for publication in the Journal.

The following letter from Lieut. Burgess, dated Pillibheet, was communicated to the Society by Capt. Thuillier.

“The following particulars of a severe shock of earthquake on the evening of the 31st March last, may not be uninteresting to the Asiatic Society.

“It commenced about 8h. 28m. P. M. mean time, Longitude $79^{\circ} 44' 91''$, the wave appearing to come from between the North and N. W., and in a few seconds the shocks became so violent and rapidly repeated, as to render it difficult to stand. This was succeeded by a gradually decreasing tremulous noise, which became imperceptible at 8h. 29m. 24s. It was accompanied or preceded by a heavy rumbling or rushing sound as of an approaching storm. The day had been excessively sultry, but a thunder-storm had cooled the air in the afternoon; the thermometer at the time stood at 69° .

“The time is correct for the place, but it is possible the longitude may be a little out: if it is desired, I will send the correction on that account hereafter.”

Professor Oldham remarked, “that it would be very desirable if the Society could take advantage of this opportunity to direct the attention of observers, who might have an opportunity of noticing the phenomena connected with earthquake shocks the great value of determining, if possible, the exact time, relatively, at which the wave was felt at distant points. It was now almost an admitted fact in the science, so to speak, of earthquakes, that the rate of transmission of the shock was a function of the class or kind of rock or soil, through which it was transmitted. It becomes therefore very interesting to determine this rate of transmission for given localities. And as India presented so remarkable a continuity in its Geological formation, the same rock extending sometimes for hundreds of miles, there were peculiar opportunities in this country for determining this question. With a view to this point, it was not of so much importance to determine with great

accuracy the absolute time, whether near, or true, at which the shock occurred at any given locality, (although this was very important when it was possible,) but to fix with the greatest attainable accuracy the exact *relative time* at which the same shock was felt at different and distant localities. There would always be some difficulty in doing this accurately, but he believed that in many instances it had not even been attempted; although he thought much service might be done, if the attention of observers were directed to this enquiry."

The Librarian and the Curator of the Zoological Museum submitted their reports for the last month.

Thanks having been voted for the above communications and presents—the meeting adjourned.

(Signed) JAS. COLVILE.

Confirmed, June 2nd, 1852.

Report of Curator, Zoological Department, for May, 1852.

The following donations have been received :—

1. From Capt. Berdmore, Madras Artillery. A box of skins from Mergui, comprising several species of much interest.

Among the Mammalia, is a specimen of *GALEOPITHECUS VOLANS*, not heretofore obtained from so northern a locality; *SCIURUS CHRYSONOTUS*, nobis;—*MUS*——? Affined to *M. FLAVESCENS*, Gray, except that its upper-parts are of a much darker colour, and the caudal rings and setæ are very much coarser; the white lower-parts contrasting strongly; an adult, $\frac{1}{2}$ grown young, and small young;—and, lastly, an imperfect skin of a young calf of the *Tsain* or "Wild Ox" of the Tenasserim provinces, *BOS SONDAICUS*, Muller, which there co-exists with *Bos GAURUS* but not the *Bos FRONTALIS*.*

* So far as we have seen, the horns of *B. GAURUS* of the Tenasserim provinces and Malayan peninsula are constantly shorter and somewhat more abruptly curved than in Indian specimens; and the following description of the Malayan animal would seem to indicate that perhaps the species is not absolutely the same, however closely it may be affined. In the Journal of "a trip to the Moar river" district, published in the 'Journal of the Indian Archipelago, Vol. IV, p. 354, two species of wild cattle are mentioned, one called *Sapandang*, the other *Sapi*; and the following is a description of a cow of the latter taken from the freshly killed animal. "The *Sapi* has much appearance of the Bali cattle" (*Bos SONDAICUS*), "but has not the white patch on the buttocks; the horns are small, curved inwards, white tipped with black; the forehead is flat, with a tuft of long hair on it, particularly

The birds also comprise species, of more or less interest, either intrinsic or in connexion with the locality. Such are *PERNIS BRACHYPTERUS*, nobis, *n. s.*; *PODICA PERSONATA*, G. R. Gray; and *HERODIAS IMMACULATA*, Gould. We had not previously seen the common "Java Sparrow" (*AMADINA ORYZIVORA*) from so far northward. The *ARGUS GIGANTEUS*, *EUPLOCOMUS IGNITUS*, *ROLLULUS CRISTATUS*, and *R. (?) OCELLATUS* abound in the province; *CASARCA LEUCOPTERA*, nobis, has hitherto been only there met with; and *CRYPsirina varians* and *MACROPYGIA AMBOINENSIS* are species common to the province and to the island of Java, neither of which have we seen in collections from Penang and Malacca:

in the bulls. The back is curved, the highest part being about the centre: the spines of the vertebræ are unusually long. The total height of the animal killed, from hoof to spines of dorsal vertebræ, was 6 ft. 2 in. The hair was smooth and silky, of a brown colour, except on the feet which were a dirty white; *a mane of about 2 in. long, ran the whole length of the spine.* There was no dewlap, and the whole appearance of the animal was decidedly game. The fibre of the flesh was fine, well mixed with fat, and proved decidedly the most delicious meat for flavour, tenderness and juiciness, that ever any of us tasted." "The other species of wild cattle (the *Saladang*) we did not see, although we met their tracks every day. The Malay guide told us that the meat was coarser than that of the Buffalo and not good eating; but that the animal was much larger than the *Sapi*, some of the bulls growing to seven '*astas*.' This is the moderate height of 10½ ft. My readers may believe it or not as they please. I am rather sceptical myself, and only relate what was told me by a man whose statements we found correct as far as we had the opportunity of testing them." At all events, what the Malayan *Sapandang* is, remains to be determined; and the Indian *Gaour* has neither the tufted forehead nor spinal ridge of lengthened hair described of the Malayan *Sapi*. The *Banteng* does not appear to have hitherto been observed in the Malayan peninsula; but Capt. Phayre has presented the Society with the horn of a cow from Arakan, and we also have (belonging to him) the frontlet of another cow from Pegu remarkable for the whitish colour of the horns, thus verifying Pennant's account of white-horned wild cattle in the Indo-Chinese territories. These can be compared with our fine frontlets of Malay *Bantengs* from Java. The species also inhabits Bali, Sombok, and part at least of Borneo; but in Celebes there would seem to be a distinct and undescribed Wild Ox, (vide '*Journal of the Indian Archipelago*,' Vol. II, p. 831, translated from the Dutch.) "A skull with horns of the wild cow of Tenasserim" was presented to this Society at its meeting for February, 1831, (vide *Gleanings of Sciences*, III, 61, where some notice is given of the animal;) and for further details respecting the various wild oriental cattle, vide *J. A. S.* Vol. XI. p. 444 et seq.

the same may be remarked of the Burmese *Tsain* or Java *Banteng* (*Bos SONDAICUS*) among mammalia. But the three most interesting acquisitions are the new *PERNIS*, the *PODICA PERSONATA*, of which the British Museum specimen from Malacca described by Mr. Gray has, we believe, remained unique up to the present time, and the small Australian white Egret, which however we suspect to be identical with the Malayan *Ardea melanopus*, Wagler, v. *A. nigripes*, Temminck.* The *PERNIS* may be described as follows :

* Other species of Australian Herons figured as new by Mr. Gould appear to be perfectly identical with those of India, and which are more or less diffused over the greater part of the 'Old World' or major continent and its dependencies. Thus, his *Ardea rectirostris* is *A. SUMATRANA*, Raffles, v. *fusca*, nobis, which extends its range to Arakan and the valley of the Brahmaputra : but his *A. LEUCOPHÆA* is not (as he avers) the common Indian Heron, which is true *A. CINEREA*, L. (v. *A. bruhi* of Jacquemont's *Atlas*?), identical with European : and Chinese examples ; and the Egret group, which seems still to be in a considerable state of confusion, we will here make some attempt to elucidate. The Asiatic species are as follow. *A.* With pure white plumage at all ages.

1. *H. ALBA* : *Ardea alba*, L. ; *A. egretta*, Tem. ; *A. modesta*, Gray ; *A. flavirostris* et *A. melanorhynchos*, Wagler ; *A. torra*, Buchanan Hamilton and Franklin ; *H. symmatophorus*, Gould. Hab. S. E. Europe, Asia and its islands, Africa, and Australia ; very common in India. This is by far the largest species, measuring generally about 3 ft. to tail-tip, by $4\frac{1}{2}$ ft. in. alar expanse ; closed wing 14 in. beak to frontal plums $4\frac{1}{4}$ in. ; tarse $6\frac{1}{2}$ in. ; middle toe and claw $4\frac{1}{4}$ in. The bill is black in the breeding season, and becomes so before the dorsal train is put forth ; and the train is retained for some time after the beak has changed back to yellow ; so that both black-billed and yellow-billed examples are seen with and without the train. The latter is straight to the extremity, and in fine specimens passes 4 or 5 in. beyond the tail-tip. No crest nor supplementary neck-plumes pendent over the breast. Bare portion of tibia either wholly or commonly in great part pale or albescent, suffused with purplish red ; and sometimes the tarse and toes are also partially of this hue, the rest being black. In the height of the breeding season the loreal and other naked skin at base of bill is of a beautiful pea-green approaching to verditer ; at other times bright wax-yellow. Irides pale yellow. *Remark.* Temminck and others describe a small pendent occipital crest to this species, which we have never seen, though many dozens of fresh specimens in the finest nuptial plumage have passed under examination. Temminck further asserts that Japanese examples are similar but rather smaller ; but he does not shew that he has remarked this in a sufficient number of instances. The American *H. GALATEA*, (Molina, *Ardea leuce*, Tem.) differs in having shorter legs and toes, which are wholly black ; and from the published figures it would seem that the train is

PERNIS BRACHYPTERUS, nobis, *n. s.* A much injured skin of a very beautiful species, conspicuously distinguished from *P. CRISTATA* by the comparative shortness of the wings and tail, and by a plumage more intense in colouring and contrasts than we have ever seen in *P. APIVORA* or *P. CRISTATA*. Length of closed wing 13 in. only; and of tail but $8\frac{1}{4}$ in.

longer, as in the next species: according to Degland, they may further be distinguished readily when in breeding livery, by the stems of the train-plumes being flattened in *H. ALBA*, and "relevée, a côte," in *H. GALATEA*.

2. *H. INTERMEDIA*: *Ardea intermedia*, Wagler; *A. egrettoides*, Tem.; *A. nivea*, Lesson; *A. flavirostris*, Bounaterre; *A. putea*, Buch. Hamilton; *A. nigrirostris*, Gray; *H. plumifera*, Gould. Hab. as last, the two species commonly associating in one flock. In the Malay countries it would appear to be the most common species of white Egret, and Temminck states that it differs in no respect in Japan. It is considerably smaller than *H. ALBA*, with much shorter beak, and long straight dorsal train in the breeding season, reaching nearly or quite to the ground. It has also beautiful long pendent breast-plumes of similar texture to the train; but no occipital crest. The beak changes colour as in *H. ALBA*; but the tibia is never (that we have seen) whitish as in that species, and this is the only difference we can perceive between the Indian bird and Gould's description and figures of *H. plumifera* from Australia. The facial skin, also, does not (that we have remarked) become green during the breeding season. Bill to forehead 3 in.; tarse $4\frac{1}{2}$ in.; middle toe and claw 4 in.; closed wing 12 in.

3. *H. GARZETTA*: *Ardea garzetta*, L.; *A. xanthodactyla* et *A. nivea*, Gmelin; *A. orientalis*, Gray. Hab. as preceding species, with the exception of the great Austral-asian archipelago and Australia (so far as observed hitherto). Bill black at all seasons, with whitish at base of lower mandible and at the extreme base also of the upper. Feet black with yellow toes. Dorsal train curved upward at the extremity (quite as much so in fine specimens as in the American *H. CANDIDISSIMA*, though represented as straight in the wood-cut to Yarrell's 'British Birds'). Occipital crest consisting of two or three (generally two) long narrow pendent plumes measuring about 6 in. in fine specimens; but these appear to be only worn for a short season; and there are lengthened nuchal plumes of similar texture pendent over the breast. Bill to forehead $3\frac{1}{2}$ in.; tarse 4 in.; middle toe and claw exceeding 3 in.; closed wing 10 in. There is much variation in the depth and quality of the yellow colouring on the toes. When much in quantity it is pale and greenish, and extends more or less up the tarse, even to the tarsal or heel joint, and the claws are then commonly whitish-horny. When contracted in quantity it is of a deeper and buff yellow, with sometimes the tips of the toes and the claws black, all or a portion of them. Hence it may be suspected that varieties of this bird with wholly black toes occur sometimes, and the same also probably in the affined *H. CANDIDISSIMA* of America, which has similar yellow toes, imparting an appearance as though the bird had been

Symphysis of the lower mandible much shorter than in *P. CRISTATA*. The corneous sheath of the upper mandible wanting in the specimen. Upper parts fine deep hair-brown, with a rich maroon gloss. Occipital crest ample, broad, $2\frac{1}{4}$ in. long, the feathers composing it white-tipped, as are also those adjacent. Wings obscurely banded, as seen from above ;

treading in some yellow substance : but such specimens would not constitute the *H. MELANOPUS*, (Wagler, vel *A. nigripes*, Tem.,) which has other distinctions and would seem only to differ from *H. IMMACULATA* in being larger and longer-legged than *H. GARZETTA* instead of the reverse. According to Temminck, throughout all Asia to Japan the species is true *GARZETTA*, but that of India and the Sunda Isles is different, being his *A. nigripes*, which also extends as far as N. Guinea. (By the term "India" is here doubtless meant *Netherlands* India, for in India proper the *GARZETTA* abounds to the exclusion of the other). So far as we are aware, *H. GARZETTA* can only be distinguished from *H. CANDIDISSIMA* when both are in breeding plumage, however little of this may be developed ; the American bird acquiring a full crest of loose feathers, and pendent breast-plumes of similar texture to the train (as in *H. INTERMEDIA* only less developed).

4. *H. IMMACULATA*, Gould : *Ardea melanopus* (?) Wagler ; *A. nigripes* (?) Temminck. Hab. Australia ; Mergui ; the Malayan peninsula and great Asiatic archipelago to N. Guinea and perhaps N. Ireland ? Rather smaller than *H. GARZETTA*, with much shorter toes, which are not yellow as in that species, but black very slightly tinged with yellow. Dorsal train short and straight, or shewing but the slightest possible tendency to recurve, and not passing beyond the tail-tip. Occipital crest consisting of a longitudinal series of numerous lengthened slender plumes, similar to the two or three composing the crest of *H. GARZETTA* but not so large, the longest measuring about $3\frac{1}{2}$ in. Pendent breast-plumes as in *H. GARZETTA*. Beak from forehead $3\frac{3}{8}$ in. ; tarse $3\frac{1}{2}$ in. ; middle toe and claw $2\frac{1}{2}$; hind toe and claw $1\frac{1}{2}$ in. ; closed wing 10 in. If correctly referred to *MELANOPUS* v. *nigripes*, this species would appear to replace *GARZETTA* in the Austral-asian archipelago and continent of Australia. With its particular habits we are unacquainted, but they are probably those of *H. GARZETTA*. The latter species is much more familiar with man and also much less highly gregarious than *H. ALBA* and *H. INTERMEDIA*. We have seen enormous flights of the two last named Egrets in company (but *ALBA* much predominating), extending as far as the eye could reach all around, the whole proceeding in one direction over low marshy ground to or from some favourite feeding place, passing just above the reach of gun-shot, and certainly constituting a single loose yet not very straggling flock. Also, the numbers of these birds which may occasionally be put up from a small reedy tank or jheel, where perhaps but two or three had been observed on approach, notwithstanding their size and very conspicuous brilliant whiteness, are astonishing and would hardly be credited if not witnessed.

more strongly on the concealed portion of the feathers. Lower parts pure white, with broad dark medial streaks or tears on the plumage of the breast and flanks: under tail-coverts broadly banded with dusky on a

B. Of the group exemplified by the American *H. CÆRULEA* and *H. RUFESCENS*, which are white when young, and chiefly or wholly of an ashy or deep slate-colour when fully adult, there is one Indian representative.

5. *H. ASHA*: *Ardea asha*, Sykes; *A. gularis* (?); *H. pannosa* (?), Gould. Hab. Peninsula of India and Ceylon; Arabia? N. E. Africa? Australia? And, if the latter, doubtless also the intervening countries. We have seen few specimens of this bird; but three examples in our museum indicate the following phases: Young wholly pure white, with a slight and irregular intermixture of slaty upon a few of the feathers of the back, wings and tail, in no instance occupying more than a small portion of a feather in the subject under examination, except in one winglet feather upon one side only. In some specimens this slaty intermixture is probably more developed, in others probably wanting altogether. Adolescent or adult in first breeding plumage, slaty, with large white throat-patch which appears to be permanent, and also white abdominal feathers and lower tail-coverts and an admixture of the same along the lower part of the front of the neck. In the specimen under examination one winglet is almost wholly white, and the other partially so but to a much less extent. Only one occipital crest-plume remains, which with those pendent over the breast are narrow and pointed with coalescent webs, as in the two preceding species. Train short, straight, not reaching to the end of the tail, consisting of true Egret plumes, but tipped for some distance similarly to the breast-plumes. This specimen must have been procured late in the breeding season. The third specimen is unmixed slaty with the exception of the throat-patch. It had shed its crest, pendent neck plumes, and train, and had begun to put forth new feathers upon the wings of a pure deep slaty hue, contrasting with the faded and embrowned appearance of its old plumage. Legs blackish in all, with yellow toes, this colour extending more or less up the tarse, and occupying more than half of the tarse in the white specimen. Bill apparently pale yellow in the young, the upper mandible tinged with dusky in adults. Length of bill to frontal plumes $3\frac{1}{2}$ in.; tarse $3\frac{3}{4}$ in.; middle toe and claw $2\frac{3}{4}$ in.; closed wing 10 in. Mr. Gould's figure of his Australian *H. PANNOSA* would appear to represent a fully adult in breeding costume, having the train somewhat longer and fuller, and a little turned up at the extremity; and the toes would seem to be represented of not sufficiently bright a yellow colour.

The next species is nearly affined to *H. JUGULARIS* of Australia and N. Zealand, as figured by Mr. Gould, but would appear to be a smaller bird with very different relative proportions. Of *H. JUGULARIS*, there would seem to be a permanently white variety at all ages (the *H. Greyi*, Gray), which also is figured in Gould's Birds of Australia.

fulvous-whiteground. Tail lightish brown, obscurely waved; with a broad medial black band, another subterminal, and a third narrower near the base. We doubt this being either of M. Lesson's supposed species; and it certainly is not the ordinary Malayan type of *PERNIS* figured by Dr. S. Muller, which is identical with the Indian *P. CRISTATA*, at least that of

6. *H. CONCOLOR*: *Demigretta concolor*, Blyth, *J. A. S.* XV. 372. Hab. Arakan, Nicobar Islands. Like *H. ASHA* in general appearance, but altogether stouter, with longer wings and shorter tarse; generally of an uniform dark slaty hue throughout, with sometimes a white line down the middle of the throat, and occasionally perhaps a buff line as in some examples of *H. JUGULARIS*. The crest feathers are looser with more disunited webs than in *H. ASHA*; the pendent plumes over the breast are similar; as also the train, except that the long narrow tips occupy a much larger portion of the plumes. Bill yellowish mixed with brown. Toes and claw more or less of the shank yellow. An adolescent young specimen retains two or three of its nestling wing-coverts, which are dull slaty with broad pale tip; indicating that the young are dark like the parents, but have at least the wings speckled like the young of *NYCTICORAX*, *BUTORIDES*, &c. Bill to forehead $3\frac{1}{4}$ or $3\frac{3}{8}$ in.; tarse 3 in.; middle toe and claw $2\frac{1}{2}$ in.; closed wing 11 in.

The next and last to be noticed is pure white when young or in non-breeding livery, with the exception of constantly a rusty tinge on the crown, and sometimes on the ear-coverts; but in breeding dress the head and neck-plumes are largely tipped with bright glistening rufo-fulvous, and the train consists of straight hair-like feathers, of an albescent rufous hue. Bill small and weak; and the habits of this bird are remarkable, as it rarely fishes, but feeds mainly on grasshoppers and other insects, to obtain which the flocks commonly associate with herds of cattle grazing.

7. *H. BUBULCOUS*: *Ardea bubulcus*, Savigny; *A. lucida*, Raffinesque; *A. æquinotialis*, Montagu; *A. coromandelensis*, Stephens; *A. bicolor* et *A. ruficapilla*, Vieillot; *A. russata*, Temminck; *A. affinis*, Horsfield; *A. coromandelica*, Lichtenstein; *A. Veranii*, Roux; *A. leucocephala*, Cuvier; *A. caboga*, Franklin; *A. ibis*, Hasselquist. Hab. Asia and its islands, Africa, S. E. Europe. Bill bright yellow at base, orange towards tip; legs dull black, greenish underneath the toes; in the young pale greenish. Bill to forehead $2\frac{1}{2}$ in.; tarse $3\frac{1}{2}$ in.; middle toe and claw $3\frac{1}{8}$ in.; closed wing 10 in.

Remark. The texture and colouring of the train approximates this species to the *ARDEOLA* group, consisting of *A. COMATA*, *LEUCOPTERA*, *SPECIOSA*, and probably *LUDOVICIANA*; while the preceding species somewhat approximates the *BUTORIDES* group, composed of *B. JAVANICA*, *VIRESCENS*, *GUTTURALIS*, *STAGNATILIS*, *MACRO-RHYNCHOS*, &c., if not also the *NYCTICORAX VIOLACEUS*, auctorum. *H. CONCOLOR* would indeed range naturally as a small typical *ARDEA*, but can hardly be separated from *H. JUGULARIS* with its white variety, wherever this be stationed; and the great

S. India, having the crest more developed than we have ever seen in Bengal specimens.

2. From Babu Rajendra Mallicka. A fresh specimen of *TANYGNATHUS SUMATRANUS*, mas.; differing from the female in having a coral-red upper mandible instead of a fleshy-white one.

E. BLYTH.

LIBRARY.

The following additions have been made to the Library since the last meeting.

Presented.

Gelehrte Anzeigen. Vols. 26, 27.—BY THE ROYAL ACADEMY OF SCIENCES, MUNICH.

Abhandlungen der Koeniglichen Bayerischen Academie der Wissenschaften, part 2 of Vols. 21, 22, and 23.—BY THE SAME.

Bulletin der Koeniglichen Akademie der Wissenschaften, Nos. 1—52 of 1848.—BY THE SAME.

Denkrede auf Joseph Gerhard Buccarini gelesen in der öffentlichen Sitzung der Koniglichen Bayerischen Akademie der Wissenschaften am 28 Marz, 1848, von Carl. Fried. Phil. v. Martius. 4to. Pamphlet.—BY THE SAME.

Denkrede auf J. J. Berzelius, gehalten in der öffentlichen Sitzung der Königlich Bayerischen Akademie der Wissenschaften am 28 November 1848, von. Dr. C. F. P. v. Martius.—BY THE SAME.

Denkrede auf die Chemie in ihrem Verhältnisse zur Physiologie und Pathologie. Von D. Max Peltenkofer. 4to. Pamphlet.—BY THE SAME.

Ueber das ethische Element im Rechtsprincip. Von Professor Buchner. 4to. Pamphlet.—BY THE SAME.

Memoires de l'Academie des Sciences, &c. de Lyon for 1848 to 1850.—BY THE ACADEMY.

Indische Studien, von Dr. A. Weber, Volumes I. and II. part 2.—BY THE AUTHOR.

Zeitschrift der Deutschen Morgenländischen Gesellschaft, Vol. V. parts 3, 4.—BY THE GERMAN ORIENTAL SOCIETY.

ARDEA OCCIDENTALIS, Audubon, presents an instance of a purely white true Heron which assuredly cannot be referred to the group of Egrets. We should add that a Sicilian specimen presented to the Society by M. Alfred Malherbe, as *Ardea veranii*, auct, of Africa and S. E. Europe, differs in no respect whatever from examples killed in Bengal and Java.

Proceedings of the Royal Irish Academy for the years 1850-51.—BY THE ACADEMY.

Transactions of the Royal Irish Academy, Vols. X. and XVI.—BY THE SAME.

Om Mundtlig Rettergang og Edsvorne af E. Aubert. Christiania, 1849, 8vo.—BY THE ROYAL UNIVERSITY OF CHRISTIANIA.

Beretning om Kongeriget Norges økonomiske Tilstand in Aarene 1840—45 med tilhørende Tabeller. Christiania, 1847, fol.—BY THE SAME.

Jury Institutionen i Storbritanien, Canada og de forenede Stater af Amerika. Af Munch Røeder. Christiania, 1850, 8vo.—BY THE SAME.

Udkast til Militær Straffelov med motiver. Christiania, 1850, 8vo.—BY THE SAME.

Statestiske Tabeller for Kongeriget Norge Ottendo Rakke, endeholdende Tabeller over folkemængden i Norge den 31st December 1845, faint over de i Zidsnummet 1836—1845 Ugtiviede fødte og døde.—BY THE SAME.

Über Micha den Morastheten und seine Prophetische Schrift, von Dr. C. P. Caspari, Part I. Christiania, 1851, 8vo.—BY THE SAME.

Bemærkninger Angaaende Graptoletherne af Christian Boeck. Christiania 1851, 4to.—BY THE SAME.

Det Kongelige Norske Frederiks Universitet Christiania. 1845 to 51.—BY THE SAME.

Nyt Magazin for Naturvidenskaberne, Vol. 6th, Parts 1 to 4.—BY THE SAME.

Akademiske Love for de Studerende ved det Kongelige Frederiks Universitet. Christiania, 1850, 8vo. Pamphlet.—BY THE SAME.

Transactions of the Royal Society of Edinburgh, Vol. XX. part II.—BY THE SOCIETY.

Proceedings of the Royal Society of Edinburgh, Vol. II.—BY THE SAME.

Journal Asiatique, Nos. 82—84.—BY THE SOCIÉTÉ ASIATIQUE.

Journal of the Bombay Branch of the Royal Asiatic Society, January 1852.—BY THE SOCIETY.

The Oriental Christian Spectator, for March 1851.—BY THE EDITOR.

Quarterly Journal of the Geological Society, Nos. 27—8.—BY THE SOCIETY.

Calcutta Christian Observer, for May 1852.—BY THE EDITORS.

The Oriental Baptist, No. 65.—BY THE EDITOR.

Upadeshak, No. 65.—BY THE EDITOR.

Bibidhārtha Saṅgraha, No. 5.—BY THE EDITOR.

Tattvabodhinī Patrikā, No. 104.—BY THE TATTVABODHINĪ SABHĀ.

Purnachandrodaya, for April 1852.—BY THE EDITOR.

The Citizen, for April 1852.—BY THE EDITOR.

The Indian Charter, for April 1852.—BY THE EDITOR.

The Meteorological Register kept at the Surveyor General's Office, Calcutta, for the month of March 1852.—BY THE DEPUTY SURVEYOR GENERAL.

Exchanged.

Jamson's Journal, for Oct. 1851.

The Calcutta Review, No. 33.

The London, Edinburgh, and Dublin Philosophical Magazine, from Sept. to Oct. 1851.

Purchased.

The North British Review, No. 32.

The Edinburgh Review, No. 92.

Annals and Magazine of Natural History, for Jany. and Feb. 1852.

Journal des Savants, for Nov. and Dec. 1851.

Comptes Rendus, Nos. 23—6 of 1851 and Nos. 1 to 4 of 1852.



Meteorological Register kept at the Surveyor General's Office, Calcutta, for the Month of May, 1852.

Date.	Observations made at Sun-rise.					Maximum Pressure observed at 9 h. 50 m.					Observations made at Apparent Noon.				
	Temperature.			Wind. Direction at Sun- rise.	Aspect of Sky.	Temperature.			Wind. Direction at 50m.	Aspect of Sky.	Temperature.			Wind. Direction at Noon.	Aspect of Sky.
	Bar. red. to 32° F.	Of Mer.	Of Air.	W. Bulb.		Bar. red. to 32° F.	Of Mer.	Of Air.	W. Bulb.		Bar. red. to 32° F.	Of Mer.	Of Air.	W. Bulb.	
1	Inches 29.704	76.6	76.0	°		Inches 29.769	86.0	88.2	79.4		Inches 29.719	90.4	91.4	°	
2S.	.712	76.2	77.0	S. W.	Cirro-strati	.775	85.3	87.0	81.0	Cirro-cumuli	.739	90.4	91.8	S. W.	Cirro-cumuli
3	.738	81.0	81.0	S. W.	Cirro-strati	.814	87.2	89.0	79.4	Cirro-strati	.779	92.0	93.4	S. W.	Ditto
4	.741	81.4	81.4	S. S. W.	Ditto	.808	88.0	90.2	82.0	Cirro-cumuli	.781	91.7	92.0	S. S. E.	Ditto
5	.752	81.8	81.8	S. S. W.	Ditto	.809	87.3	88.4	77.5	Ditto	.789	90.4	91.2	S. S. W.	Cirro-strati
6	.792	76.6	76.2	N. W.	Drizzling	.831	78.8	79.8	75.3	Cloudy	.808	82.0	83.3	N. N. E.	Cirro-cumuli
7	.740	79.6	79.6	S. S. W.	Cloudy	.799	82.4	83.8	77.3	Cumuli	.765	84.6	85.0	S. W.	Cumuli
8	.704	79.0	79.0	S.	Clear	.740	86.8	88.4	80.8	Cumulo-strati	.690	91.2	92.8	S. S. W.	Cumulo-strati
9S.	.676	78.5	79.0	S.	Cirro-cumuli	.682	88.0	89.4	82.8	Ditto	.620	91.0	92.0	S. S. W.	Ditto
10	.602	83.0	83.2	S.	Cumuli	.641	87.0	88.2	82.3	Ditto	.586	90.4	91.4	S. sharp	Cumuli
11	.621	83.2	83.2	S.	Ditto	.680	89.0	90.2	82.0	Cumuli	.662	91.8	92.8	S. sharp	Ditto
12	.660	81.3	81.4	S. E.	Cloudy	.719	89.2	90.7	81.2	Ditto	.681	91.0	92.4	S. E.	Ditto
13	.655	81.2	81.2	S. S. E.	Ditto	.699	87.8	88.0	81.5	Cumulo-strati	.666	91.0	92.4	S. E. gale	Ditto
14	.544	79.8	79.5	N. E. W.	Ditto	.519	83.8	85.2	78.4	Ditto	.484	86.8	87.2	S. S. E.	Cumulo strati
15	.132	74.0	75.0	blo'g. gl.	Raining	.425	77.0	77.0	75.8	Nimbi	.481	80.6	83.0	S. S. W.	Cloudy
16S.	.631	81.6	81.8	S.	Cirro-cumuli	.700	87.8	89.4	83.0	Clear	.680	91.3	92.4	S. S. W.	Clear
17	.645	82.8	82.8	S. S. E.	Ditto	.708	88.0	89.0	82.6	Cirro-cumuli	.703	90.2	91.0	S. S. E.	Cumulo-strati
18	.702	78.8	79.0	S. S. E.	Cirro-strati	.737	87.6	89.3	83.3	Cumulo-strati	.710	90.2	91.0	S. S. E.	Ditto
19	.730	81.3	81.2	S. S. E.	Cloudy	.748	82.2	85.3	79.8	Cirro-strati	.694	87.2	90.6	S. E.	Cumuli
20	.665	77.2	77.2	S. S. E.	Cirro-cumuli	.723	82.8	84.4	79.3	Cirro-cumuli	.687	87.0	89.0	S. E.	Ditto
21	.639	77.2	77.6	S. S. E.	Scattered clouds	.699	85.5	86.0	81.6	Cloudy	.653	88.6	90.0	N. W.	Ditto
22	.661	74.6	75.0	N.	Cloudy	.709	81.6	81.8	79.2	Cirro-strati	.658	87.3	89.0	S. W.	Cirro-strati
23S.	.637	79.8	80.0	S.	Cirro-strati	.712	86.4	88.7	80.4	Clear	.692	91.3	92.8	S. W.	Clear
24	.724	82.2	82.6	S.	Cumuli	.782	88.0	90.2	83.3	Ditto	.733	91.8	93.4	S.	Ditto
25	.721	83.2	83.2	S.	Clear	.762	88.2	90.0	83.7	Ditto	.718	92.3	94.2	S.	Cumuli
26	.657	84.0	84.6	S.	Ditto	.701	90.0	92.7	84.0	Ditto	.676	94.7	96.8	W.	Ditto
27	.593	83.3	83.6	S. W.	Cirro-strati	.668	89.6	93.4	76.2	Cirro-strati	.641	94.6	96.3	N. W.	Clear
28	.641	83.2	83.7	W.	Ditto	.696	91.3	93.4	79.6	Ditto	.667	94.4	97.6	W. N. W.	Cirro-strati
29	.617	83.8	83.9	N. W.	Scattered clouds	.677	88.4	92.0	78.2	Cumuli	.640	95.2	97.4	W.	Cirro-cumuli
30S.	.609	80.4	80.7	S. W.	Clear	.666	90.4	93.2	79.5	Clear	.636	95.0	97.3	S.	Clear
31	.659	84.6	84.7	S.	Scattered clouds	.744	91.0	92.8	84.6	Ditto	.725	94.3	95.4	S. S. E.	Ditto
Year.	29.655	80.4	80.5	....	.....	29.715	86.5	88.0	80.5	.....	29.683	90.5	91.9	....	.....

[Meteorological Register, continued.]

Observations made at 2h. 40m.										Minimum Pressure observed at 4 p. m.										Observations made at sun-set.										Maximum and Minimum Thermometer.				Rain Gauges.		Moon's Phases.	
Temperature.			Wind.	Aspect of Sky.	Temperature.			Wind.	Aspect of Sky.	Bar. red. to 32° F.	Temperature.			Wind.	Aspect of Sky.	Bar. red. to 32° F.	Temperature.			Wind.	Aspect of Sky.	Bar. red. to 32° F.	Max.	Mean.	Min.	Max. Therm. in Sun's rays.	Elevations.	Feet, 5. Upper	Feet, 60. Lower	Date.							
Inches	°	°			°	°	°				°	°	°				°	°	°												°	°	°	°	°	°	°
29.650	92.6	92.5	81.8	S.	Cirro-cumuli	29.611	92.3	91.6	80.4	°	°	°	S.	Cirro-strati	29.598	88.4	87.3	80.6	°	°	°	Cloudy	93.8	83.4	73.0	108.0	Inch.	1.56	1	1							
.693	91.4	92.0	82.2	S.	Ditto	.654	92.2	92.7	82.0	°	°	°	S.	Cirro-cumuli	.667	90.0	88.4	81.8	°	°	°	Cirro-cumuli	93.4	82.9	72.4	110.8	°	°	2	2							
.715	94.4	95.4	80.4	W.	Ditto	.935	95.4	96.5	80.0	°	°	°	w.n.w.	Ditto	.681	92.4	91.0	80.8	°	°	°	Cirro-strati	96.4	87.2	78.0	113.4	°	°	3	3							
.718	93.2	93.0	80.8	S. E.	Cloudy	.695	91.6	92.0	82.0	°	°	°	S.	Cirro-strati	.716	88.0	87.0	78.3	°	°	°	Ditto	94.3	86.4	78.4	112.0	°	°	4	4							
.730	90.3	90.1	80.2	S.	Cirro-strati	.732	89.8	89.8	79.6	°	°	°	S.	Cloudy	.805	83.6	82.3	76.3	°	°	°	N. E.	92.0	85.5	79.0	104.8	°	0.06	5	5							
.722	85.3	85.9	77.8	N. N. E.	Cirro-cumuli	.731	86.2	86.4	77.8	°	°	°	N. N. E.	Cirro-cumuli	.684	84.5	84.0	76.8	°	°	°	Cirro-cumuli	86.8	79.9	73.0	98.4	°	°	6	6							
.664	87.3	88.2	78.4	S.	Cumuli	.626	89.0	89.6	78.0	°	°	°	S.	Clear	.650	87.3	85.7	78.3	°	°	°	Clear	89.8	83.3	76.8	106.4	°	°	7	7							
.591	93.4	93.4	82.0	S.	Ditto	.573	91.0	89.7	78.8	°	°	°	S.	Cloudy	.691	80.2	77.2	74.4	°	°	°	W.	94.5	85.2	75.8	108.4	°	0.19	8	8							
.579	92.6	93.4	82.0	S.	Ditto	.556	93.0	92.8	81.6	°	°	°	S.	Cumuli	.565	89.3	88.0	81.8	°	°	°	Raining	94.5	85.2	75.8	108.4	°	°	9	9							
.540	93.0	93.4	84.2	S. shp.	Ditto	.522	92.0	91.2	82.4	°	°	°	S. shp.	Ditto	.571	87.7	86.9	80.8	°	°	°	S.	93.6	83.9	74.2	107.0	°	°	10	10							
.584	93.0	93.0	82.0	S. shp.	Ditto	.561	92.4	91.3	81.4	°	°	°	S. shp.	Ditto	.606	88.3	87.5	78.2	°	°	°	S.	93.6	86.8	80.0	105.3	°	°	11	11							
.619	94.4	95.2	81.6	S. S. E.	Ditto	.586	94.2	94.0	81.6	°	°	°	S. S. E.	Ditto	.618	90.8	89.5	79.6	°	°	°	S.	95.4	86.7	77.9	110.4	°	°	12	12							
.589	93.8	94.0	80.5	E. gal.	Cumulo-strati	.568	91.3	91.0	79.8	°	°	°	E. gal.	Cirro-strati	.578	84.4	82.8	79.3	°	°	°	exce. bl.	94.8	86.4	78.0	103.4	°	0.10	13	13							
.414	83.0	83.6	78.0	N. E. bl.	Cloudy	.362	80.8	79.4	77.2	°	°	°	N. E. bl.	Drizzling	.312	78.8	78.8	76.5	°	°	°	SE, bl.	87.8	82.1	76.4	98.0	°	7.64	14	14							
.476	83.8	86.2	79.8	S.	Cumulo-strati	.489	84.5	85.7	77.8	°	°	°	S.	Clear	.534	83.6	83.3	79.4	°	°	°	SE, bl.	85.7	78.4	71.0	95.0	°	°	15	15							
.615	93.0	94.0	85.2	S.	Cirro-cumuli	.595	92.5	92.4	84.0	°	°	°	S.	Cumuli	.594	89.0	88.0	83.0	°	°	°	N.	93.8	85.8	77.7	109.4	°	°	16	16							
.640	91.8	92.5	84.0	S. W.	Cumuli	.624	91.2	91.0	83.4	°	°	°	S.	Cumulo-strati	.657	88.5	87.6	82.6	°	°	°	S. S. E.	93.0	86.3	79.6	106.4	°	0.10	17	17							
.664	90.8	91.6	83.3	S. S. E.	Cumulo-strati	.630	91.2	91.5	83.3	°	°	°	S. S. E.	Cumulo-strati	.642	87.3	86.4	82.0	°	°	°	S. S. E.	92.0	84.0	76.0	105.8	°	°	18	18							
.628	91.9	93.0	83.4	S. S. E.	Ditto	.591	90.8	90.6	82.4	°	°	°	E.	Ditto	.640	84.4	80.8	76.6	°	°	°	N. E.	93.0	85.5	78.0	107.6	°	0.30	19	19							
.622	90.8	92.0	82.7	E.	Cumuli	.587	91.0	91.5	82.3	°	°	°	S. E.	Cumuli	.579	88.0	86.8	80.2	°	°	°	N. W.	92.0	82.7	73.3	108.0	°	0.20	20	20							
.594	91.2	92.4	81.2	N. W.	Ditto	.571	91.6	92.0	81.0	°	°	°	N. W.	Ditto	.584	89.0	88.0	81.0	°	°	°	Cldy. to the W.	92.6	82.8	73.0	111.2	°	0.92	21	21							
.620	90.4	91.8	84.2	S. W.	Ditto	.592	91.3	91.8	83.2	°	°	°	W.	Ditto	.604	88.2	88.2	83.1	°	°	°	S. W.	92.4	81.7	71.0	106.5	°	°	22	22							
.647	93.2	94.2	81.6	S. W.	Clear	.619	93.6	91.8	81.2	°	°	°	S.	Clear	.629	90.6	89.7	81.7	°	°	°	Scatd. clouds	94.3	85.7	77.0	113.6	°	°	23	23							
.680	94.0	95.0	82.9	S.	Ditto	.661	94.5	95.0	82.0	°	°	°	S.	Cumulo-strati	.652	91.0	90.0	82.8	°	°	°	S.	95.4	87.5	79.6	112.8	°	°	24	24							
.651	95.5	96.5	83.8	S.	Cumulo-strati	.621	96.2	97.4	83.0	°	°	°	S. W.	Ditto	.605	93.6	92.7	83.0	°	°	°	S. W.	97.0	88.3	79.6	112.5	°	°	25	25							
.608	97.5	98.7	80.0	w.n.w.	Clear	.580	98.0	99.0	79.7	°	°	°	w.n.w.	Clear	.572	95.0	93.7	81.0	°	°	°	Ditto	99.0	90.5	82.0	112.5	°	°	26	26							
.581	97.0	98.2	78.0	N. W.	Ditto	.555	97.2	98.2	78.0	°	°	°	N. W.	Cirro-strati	.577	93.8	92.8	81.4	°	°	°	N. W.	98.4	89.6	80.7	112.8	°	°	27	27							
.591	95.4	97.2	75.0	N. W.	Cirro-cumuli	.563	97.0	98.3	74.6	°	°	°	w.n.w.	Ditto	.557	94.0	93.0	78.8	°	°	°	w.n.w.	98.5	89.8	81.0	116.4	°	°	28	28							
.555	98.0	99.6	75.6	S. W.	Ditto	.535	98.7	99.7	76.2	°	°	°	S. W.	Ditto	.546	95.0	94.0	79.0	°	°	°	S. W.	100.0	90.5	81.0	113.4	°	°	29	29							
.566	98.5	100.0	75.2	S. W.	Clear	.546	99.0	100.4	76.3	°	°	°	S. W.	Clear	.555	95.6	93.8	80.8	°	°	°	S. W.	100.4	89.1	77.8	116.0	°	°	30	30							
.663	97.0	97.8	82.2	S. S. E.	Ditto	.629	97.6	98.0	84.0	°	°	°	S.	Ditto	.634	93.5	92.0	83.0	°	°	°	S.	98.7	90.5	82.3	113.5	°	°	31	31							
29.620	92.5	93.4	81.0	29.594	92.5	92.7	80.5	°	°	°	22.610	88.8	87.7	80.1	°	°	°	94.0	85.7	77.2	108.7	11.03	11.89							



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